2018

Reverse Logistics in Micro Businesses : An Exploratory Study

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UNIVERSITY OF
PLYMOUTH

REVERSE LOGISTICS in MICRO BUSINESSES

An Exploratory Study

by

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A thesis submitted to University of Plymouth
In partial fulfilment for the degree of

DOCTOR OF PHILOSOPHY

Plymouth Business School

2018

Acknowledgements

It would have been almost impossible for this thesis to come into existence without the input of various people who have both directly and indirectly provided their input.

Thanks are due to:

My supervisors, for their top-class advice and suggestions. Thanks to them for patiently reading and providing feedback for the relevant materials I sent out.

My heartfelt thanks and gratitude go to all those micro businesses in Devon and Cornwall who kindly provided me with their time and who have been able to assist me in the data collection process throughout the data collection period.

My parents in Nepal, for their continuous encouragement and blessings.

All my close friends, peers and colleagues, for their real life PhD stories and continuous PhD-related anecdotes, which have kept me going during this period.

And finally, warm regards to my husband Dipak and my son Diggaj, for their continuous support and patience, which has given me the chance to achieve this degree.

Author's Declaration

At no time during the registration for the degree of Doctor of Philosophy has the author been registered for any other University award without prior agreement of the Doctoral College Quality Sub-Committee. Work submitted for this research degree at the University of Plymouth has not formed part of any other degree either at the University of Plymouth or at another establishment. Appropriate seminars and conferences were frequently attended through the period of study, at which papers were presented and included in the proceedings. A paper on 'secondary market' was published during the literature review, which was found as one of the more significant aspects of reverse logistics and sustainability in the literature. Nevertheless, the author is considering publishing several research articles in near future, related to the rich outcomes of the literature review, and also related to the findings of this study.

Word Count

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Abstract

There has been growth in managing supply chain processes for enhancing both economic and environmental benefits. Consequently, new dimensions in the supply chain have been added, with one of them being reverse logistics. Reverse logistics deals with the backward flow of goods which help firms to recover and reinstate discarded products, helping firms to realise their economic and environmental initiatives. Reverse logistics has now become a matter of strategic importance, helping to bring sustainable competitive advantage to the firm.

This study recognises the inclination of the current research in reverse logistics to focus on larger firms. Hence, this research explores how smaller businesses, specifically micro enterprises, pursue reverse logistics to understand the related capabilities they have, and also to understand the way they address/perceive the related costs; this has the potential to contribute towards the development of the reverse logistics concept in micro firms. The two theoretical lenses of Resource Based View and Transaction Cost Economics are employed, both of which have the potential to explain the capabilities and the cost situation, respectively. An exploratory case study methodology is employed, and research is made on six micro retail firms. A semi-structured interview is used as the primary data collection method, supported by participant observation. The findings indicate that micro businesses may not possess all the relevant capabilities but pursue reverse logistics in their own unique way which, however, needs further development and refinement. The findings also suggest that micro businesses have developed the capabilities for reverse logistics, they however are not aware of all the benefits they can achieve through this capability. The findings also show that various cost facets prevail in the reverse logistics cost situation of the studied businesses. Not having a clear understanding of the various cost situation has again prohibited these businesses from making an optimal cost decision. This thesis realises the need to study the related capabilities and costs in the micro business context. As being small and resource constrained in nature, a phenomenon like reverse logistics – which is resource intense – can be a challenging aspect to pursue for these businesses.

The study contributes to knowledge in both the reverse logistics and micro business research fields, by recognising key gaps within the related combined literature, critiquing current theory, and developing new and unique theoretical perspectives.

Key words: Reverse Logistics, Micro Businesses, Capabilities, Costs

Abbreviations

Acronym	Meaning
AHP	Analytic Hierarchy Process
AIS	Artificial Immune System
ANP	Analytical Network Process
BSC	Balanced Score Card
CA	Carbon Footprint
CAGR	Compound Annual Growth Rate
CEO	Chief Executive Officer
CRC	Central Return Centre
CSR	Corporate Social Responsibility
CT	Contingency Theory
FLT	Facility Location Theory
GTA	Graph Theoretic Approach
IBM	International Business Machine Corporation
IT1	Inventory theory
IT2	Institutional Theory
MB	Micro Business
MRP	Marginal Revenue Productivity
NLA	Network Level Approach
PRM	Product Recovery Management
PSO	Particle Swarm Optimization
R & D	Research and Development
RAT	Resource-Advantage Theory
RBV	Resource Based View
RBVT	Resource Based View Theory
RL	Reverse Logistics
RV	Relational View
SBA	Small Business Act
SCT	Strategic Choice
SME	Small and Medium-Sized Enterprise
ST	Stakeholders Theory
TCE	Transaction Cost Economics
TCE	Transaction cost Economies
TOPSIS	The Technique for Order of Preference by Similarity to Ideal Solution
TSD	Theory of Social Development
UK	United Kingdom
VCR	Video Cassette Recorder

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Chapter 1: Introduction

This research explores the intersection of reverse logistics (RL) and micro business (MB). Whilst there exists a developing cannon of research in both fields, the relevance of RL in MBs has been ignored. This is despite the fact that MBs make up 91.5% of all enterprises, compared to 7.3% categorised as small, 1.1% as medium, and 0.2% as large enterprises (European Commission, 2008). This figure confirms that compared to small, medium, or large businesses, MBs are more likely to make a significant impact both economically and environmentally. This thesis aims to close this research gap and extend the theory by exploring the current state-of-the-art research and generating relevant new theory through in-depth case work. In the sections that follow, this chapter contextualises the research, presents the research questions with research methods, and summarises the unique contribution of the research.

1.1 Background of the Research

Supply chain management is '*an integrative philosophy to manage the total flow of a distribution channel from supplier to the ultimate user*' (Cooper et al., 1997, p.67). Consequently, scientific contributions and business practices within the delivery chain have been well explored, because firms have always given more attention towards getting products and services to the marketplace (Gobbi, 2011). However, the supply chain is not limited to a forward logistical flow (Lambert, Cooper and Pagh, 1998), and given developing environmental and economic concerns, there has been an increasing focus on the reverse logistical flow due to an increase in the types of services it integrates, and '*one of them is reverse logistics*' (de Brito, Dekker, and Flapper, 2005, p.35).

According to one of the most comprehensive and commonly used definitions, RL is:

> 'the process of planning, implementing, and controlling the efficient, cost effective flow of raw materials, in-process inventory, finished goods, and related information from the point of consumption to the point of origin for the purpose of recapturing or creating value or proper disposal.' (Rogers and Tibben-Lembke, 1999. p.2)

According to this definition, there is no doubt that RL is a 'process'. RL, however, is more than a process, as it allows unwanted goods to flow backwards in the supply channel, enabling firms to achieve their economic, environmental, corporate social responsibility (CSR) and green image initiatives (Ravi, Shankar and Tiwari, 2005).

Businesses may want to reverse goods in the supply chain for various reasons, including economic reasons (Minner and Kiesmuller, 2012; Dias, Junior and Martinez, 2016). Firms can get both direct and indirect economic gains through RL (de Brito, Dekker and Flapper, 2004; Ravi, Shankar and Tiwari, 2005). RL gives economic gain to the firms by adding value to the product, as it opens up new marketing opportunities for discarded products (Rogers, Rogers, and Lembke, 2010; Dowlatshahi, 2012; Dhakal, Smith and Newbery, 2016). The unsold and excess products (Rajagopal, Kaliani Sundram, and Naidu, 2015), customer returned products (Bernon and Cullen, 2011) or products that are damaged, broken, expired or faulty (Niknejad, 2014) may still hold some value. These products can be traded back in alternative markets for value recovery (Dhakal, Smith and Newbery, 2016). These products can also be sent back to the supplier for compensation (Tibben-Lembke and Rogers, 2002; Bernon, Rossi and Cullen, 2011). There is also economic benefit in bringing these products back for value-added disposal rather than landfilling them, as paying landfill costs is not considered economical (Thierry et al., 1995; Flapper et al. 2005). Enabling customers to return products by providing a liberal returns policy is another component of RL. These policies enable a more stable consumer base, as customers are more likely to choose retailers with good returns policies in place (Skinner, Bryant and Richey, 2008; Pei, Paswan and Yan, 2014). Firms can use the data related to returned products in the improvement of product design, thereby by enhancing brand equity (Biderman, 2006). In addition, an enhanced knowledge of product returns can help to identify the areas in operations where corrective action may be necessary, such as in manufacturing or marketing (Stock and Mulki, 2009). RL is also becoming more economically attractive due to increases in commodity prices (Li and Olorunniwo, 2008) as parts and materials of used products still have economic value and can be reused (Minner and Kiesmuller, 2012). Hence, firms find using the parts and materials of used product more economical, resulting in lower production costs which again help to increase firms' competitiveness (Dekker et al., 2004; Stock and Mulki, 2009; Rajagopal, Kaliani Sundram and Naidu, 2015). RL can also be used to bring used products back into the company, thus preventing others from entering the market by protecting their technology (de Brito and Dekker, 2004).

RL does not only provide economic gain. Another reason for the growing concern in recent years over issues like RL is due to environmental concern (Srivastava and Srivastava, 2006; Demirel and Gökçen, 2008; Ramos, Gomes, and Barbosa-Póvoa, 2014). Public awareness of climate

change has grown, and consequently, firms are expected to implement proactive policies and action plans. Even businesses that are acknowledged as environmental leaders are finding that previous actions are no longer sufficient (Higgs et al., 2009). Hence, there is lot more to do in terms of environmental initiatives, including incorporating a good RL programme into their agenda (Hsu, Tan, and Zailani, 2016). Nevertheless, corporate environmental programmes may provide a source of competitive advantage (Menon and Menon, 1997; Molina-Azorín et al., 2015), as RL can be seen as a tool to initiate the environmental philosophies related to phenomena like extended producer responsibility (Sachs, 2006), take-back legislation (Atasu, van Wassenhove, and Sarvary, 2009), closed loop supply chain (Dekker et al., 2004), product stewardship (Michaelis, 1995), cradle to cradle (Kumar and Putnam, 2008), circular economy (Andersen, 2007) and sustainable supply chain (Ashby et al., 2012). Implementing any of these initiatives will allow firms to be an environmentally responsible company, as one of the core components of all these terminologies is similar to RL, which is to collect back and extract value from discarded products from both consumers and businesses (Dhakal, Smith and Newbery, 2016).

The firms who are proactive and knowledgeable may understand the benefits of RL and take the initiative of incorporating a RL programme into their firm, either for economic, environmental, CSR, or green image reasons (Ravi, Shankar and Tiwari, 2005). However, not all firms are able to adopt RL. This, however, does not mean that firms can ignore RL altogether. Due to depleting resources, scarcity of landfill areas, and adverse effects in human health, policy makers have formulated take-back laws for certain selected products. These policies have compelled some of the firms who may have ignored RL to take back used goods at the end of their life (Lifset et al., 2013; Gui et al., 2015). Consequently, take-back and recovery obligations have been enacted or are underway for a number of product categories, including electronic equipment in the European Union and in Japan, cars in the European Union and Taiwan, and packaging materials in Germany, which guides firms to integrate RL programmes in all sizes of business (Kannan et al., 2012).

RL affects all supply stages; hence, the topic has been studied in all stages of the supply chain such as manufacturing (Jayaraman, Guide Jr and Srivastava, 1999; Mutha and Pokharel, 2009), retailing (Rogers et al., 2002; Bernon, Rossi and Cullen, 2011) and wholesaling (Stock and Mulki, 2009). This issue has also been studied through various product categories, such as returnable containers (Kroon and Vrijens, 1995), electrical goods (Daugherty, Autry and Ellinger, 2001; Shih,

2001; Lau and Wang, 2009), computers (Shih, 2001; Ravi, Shankar and Tiwari, 2005), the plastic industry (Pohlen and Farris, 1992), automobiles (Daugherty et al., 2005), beverage containers (Goldsby and Closs, 2000), VCRs (Tibben-Lembke and Rogers, 2002), grocery and general merchandise (Bernon and Cullen, 2007) and the publishing industry (Wu and Cheng, 2006; Bernon and Cullen, 2007). RL has also been studied in a country-specific context, including China (Lau and Wang, 2009), Germany (Walther and Spengler, 2005), India (Srivastava and Srivastava, 2006), South Africa (Stock, 1998), Taiwan (Shih, 2001), Europe (Krikke, 2001; de Brito, Dekker and Flapper, 2004; Ravi, Shankar and Tiwari, 2005) and the USA (Ferguson and Browne, 2001; Meade and Sarkis, 2002).

Consequently, RL can affect all types of supply chain stages, businesses, products and countries. However, the previous focus has been on firms large enough to manage their own supply chain. This research, however, argues that smaller businesses also operate as retailers, wholesalers and manufacturers who may deal with products that are likely to go through the process of RL (Finch and Cox, 1986; Jorissen, Martens and Reheul, 2001; Klemz and Boshoff, 2001; Dietsch and Petey, 2002; Briscoe, Fawcett and Todd, 2005; Saleh and Ndubisi, 2006; Ramakrishnan, 2010; McGee and Rubach, 2011; Wilkerson, 2011; Chung, 2012). Very few researchers have looked into the RL aspects concerning small- and medium-sized (SME) businesses and '*there still exists a significant gap with respect to returns handling in the case of SMEs*' (Ruiz-Benítez and Cambra-Fierro, 2011, p.85). This means only a handful of researchers (Benítez and Fierro, 2011; Stewart and Ijomah, 2012; Khan, Khan, and Zhang, 2012; Sundin and Dunbäck, 2013) have explored RL in the smaller business context. These studies indicate that the study of RL, with respect to small businesses, is still in its emerging and developing stage. Nevertheless, small businesses are not just smaller forms of large businesses, but there are some fundamental differences between large and small businesses. The operation and management styles of small businesses are different in many ways from their larger counterparts (Storey and Greene, 2010), which is likely to affect the processing of RL for these types of businesses. In due course, more research is needed to understand the RL aspect concerning smaller businesses. Hence, this research explores how RL operates within much smaller businesses, specifically MBs, which is believed will provide a nuanced view of MB RL to contribute to the existing body of knowledge.

1.2 Research Questions

A review of the literature illustrates that RL may be an expensive and complicated process to operate (Dekker et al.,2013). Without economies of scale and scope, it is likely to be even more expensive and complicated in the MB context. Here, the resource constrained nature of MBs may hold contradictions with the resource intense nature of RL. Consequently, to understand MBs' capabilities and the various costs associated with RL, this thesis explores the following two research questions:

> **RQ1:** Do micro businesses have the capabilities to go through the process of reverse logistics for sustainable competitive advantage?
>
> **RQ2:** How do micro businesses perceive/address the costs involved in the process of reverse logistics?

As per RQ1, sustainable competitive advantage is the norm attached to the theory of Resource Based View (Barney, 1991), which argues that a firm can derive sustainable competitive advantage by acting in a more superior manner than their competitors with the development of superior capabilities and resources. With the use of the two theoretical lenses of Resource Based View (RBV) and Transaction Cost Economics (TCE), this study adopts the abductive case study method to gain insights into how the specific firm characteristics of the studied firms inform going through the various processes of RL.

The findings offer a rich and nuanced view of RL in the MB context, which emphasises the corrective identification and use of resources to build and further develop capabilities. The findings also help to bring together some scattered facets of costs concerning RL, which again informs the way of optimising the cost of RL in these businesses. The findings confirm that the studied firms do not fully adhere with the existing practices of RL, and that they have unique way of doing things, which is the result of their unique characteristics. Consequently, this study makes some key contributions, with implications for practitioners, researchers, and policy makers.

1.3 Research Process and Thesis Structure

Chapter 1 provides the background of the research, which also gives an overview of the rationale behind conducting this research. This chapter also provides an overview of the research process and the thesis structure.

Chapter 2 introduces RL along with its definition. RL is identified as a process, hence the steps and components that affect the process of RL are identified and explored. Consequently, factors such as types of goods accumulation and their volume, processes in RL including transportation, storing/warehousing, and sorting/selecting/inspecting/testing are discussed. Disposal options available for the reversed goods, time required to manage goods, relationship and collaboration, and drivers and barriers that affect RL are also the focus of this chapter. The chapter concludes with the overview of past research and identifies that there is no known prior research on MB RL, which is considered a significant gap in the literature. It is recognised that MBs, which are the extreme case of smaller businesses, can provide a nuanced view of RL, which can again add new knowledge to the existing body of literature.

Chapter 3 underlines that MBs, which are the extreme case of smaller businesses, can provide a nuanced view of RL. Consequently, the literature review on the relevant aspects related to MB RL is made in this chapter. Chapter 3 defines MBs and examines their key characteristics which are relevant in understanding MB RL, such as organisational structure, management style, constraints and strengths, environmental management, and supply chain management.

Chapter 4 discusses the theoretical approaches concerning RL which also contemplates with the nature of MB characteristics. This chapter identifies that capabilities and cost are the two key areas that need further exploration in the context of MB RL. Consequently, this chapter recognises Resource Based View (RBV) and Transaction Cost Economics (TCE) as two appropriate theoretical lenses, useful in understanding the capabilities and cost aspects concerning MB RL. These theoretical lenses assist in stating the aims and objectives of the research, which has again helped in formulating the two research questions. The reviews made in Chapters 2 and 3, and the discussion made in Chapter 4, also helped to sketch the conceptual framework for portraying the capabilities and costs for MB RL. The conceptual framework is presented and discussed at the end of Chapter 4.

Chapter 5 recognises that this study considers two contrasting aspects – RL and MB. RL has been identified as a resource-intense task, while MBs were characterised as being resource constrained in nature. Besides, having no prior research on MB RL was a problem. Hence, to have a reliable and valid research outcome, this chapter recognises that this research needs to be conducted in two phases. Phase 1 was conducted parallel to the literature review, to have an initial understanding of the key components of RL in the MB context. The findings of this initial research and the relevant literature review guided the final phase study.

This chapter also identifies the philosophical and methodological approaches taken for this research. Based on the nature of the study, a mixed methods research approach under the pragmatic philosophy was considered appropriate. Consequently, the initial phase research, under the mixed methods approach, is represented by both quantitative and qualitative methods, i.e. data were collected using 120 surveys and 15 interviews. This chapter also demonstrates that the case study method is the most appropriate strategy of enquiry for the final phase study, which warrants the provision of an in-depth analysis of RL in MBs. Hence, the final phase research used six in-depth case studies with micro retailers, based in the South West of the UK. The research process diagram is presented in Figure 1.1.

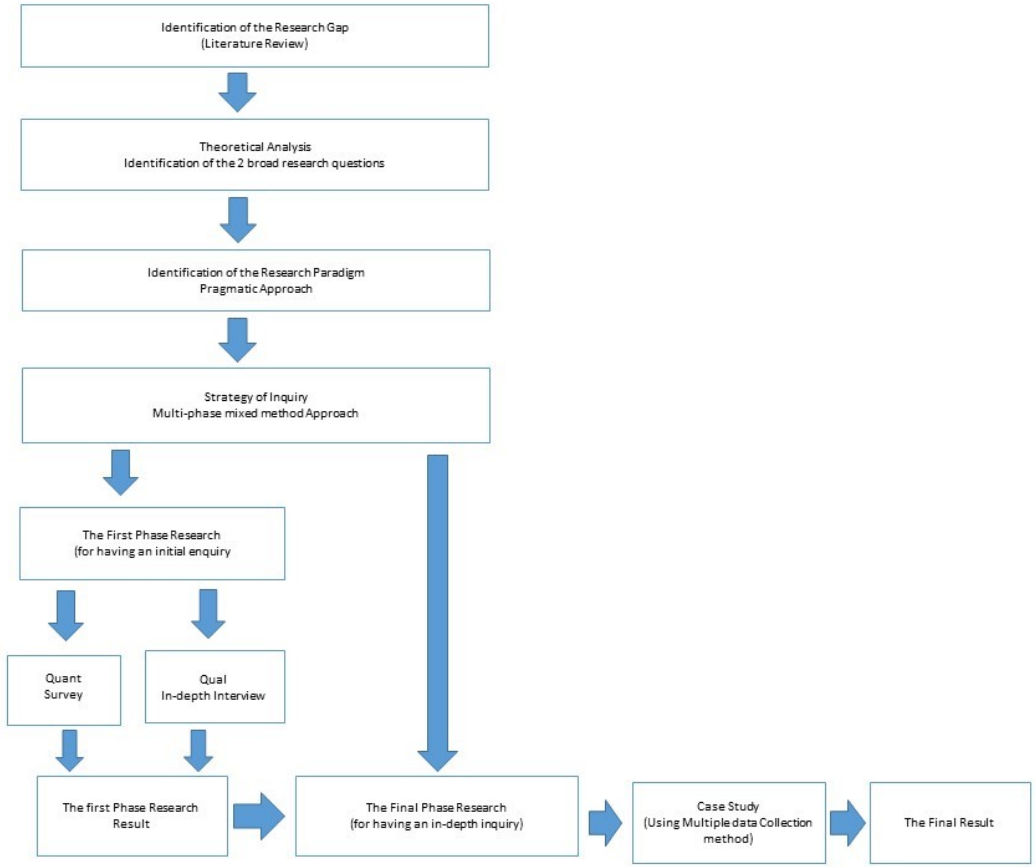

Figure 1.1 Research Process Diagram

Chapter 6 presents the findings for the first phase research. Thematic analysis was used to analyse the qualitative data, while descriptive quantitative statics were used to analyse the quantitative data for the first phase research. This phase provided a number of insights on some of the key aspects concerning RL in the MB context, with the possibility to build on the research findings by commencing a more in-depth inquiry in the final phase study.

Chapter 7 presents the findings for the final phase study, with the analysis of the data collected using semi-structured interviews and participant observation from the six in-depth case studies. This chapter analyses the case study data using within-case analysis, followed by cross-case analysis. This chapter analyses the RL processes of the studied businesses and identifies the key themes relevant to the capabilities and costs aspects related to the process. This helps in identifying both the case-specific and overall themes for this study. Chapter 7 also identifies the key emerging themes for this study.

Chapter 8 presents a discussion of the research findings, aligning them with the existing literature and the used theoretical lenses. This approach helps in identifying the key differences and similarities between the findings and existing literature.

Chapter 9, as the concluding chapter of this thesis, provides an explanation of the practical and theoretical research contributions made by this research. In Chapter 9, the thesis concludes with the identification of the limitations of this research, along with recommendations for practitioners, researchers, and policy makers.

1.4 Research Contribution

This thesis explicitly considers the capabilities and cost aspects of MBs as they engage with the process of RL, consequently making both theoretical and practical contributions.

1.4.1 Theoretical Contribution

This study was conducted to explore if MBs have capabilities to go through the process of RL and to explore the way they address/perceive the related costs. In due course this thesis makes many theoretical contributions which is summarised in the section below;

First, this research contributes by being the first study of its kind to explicitly identify and explore how the resources and capabilities for RL may differ in the MB context from those mentioned in the literature for the large business RL context. This means that MBs have some unique way of

identifying and developing the resources to develop the RL capabilities, which reflect their unique nature. This research makes the contribution by explicitly identifying these differences. The study found that MBs possess most of the RL capabilities, but due to their resource constrained nature they do not possess all the capabilities for RL. Furthermore, the resources and capabilities they possess have been found in need of further development and refinement, which would again help them in attaining the RL related competitive advantage.

Second, in relation to the theory of RBV, this research contributes by exploring some new dimensions related to MBs' RL capability. Literature reveals that RL capability, as per the theory of RBV, can provide the chance for firms to achieve competitive advantage. RL brings both economic and environmental benefits, which can again be used by the firms for sustained competitive advantage. Use of RBV theory has explicitly helped to understand that MBs also identify and use various resources to build RL capabilities. However, due to their unawareness of all the benefits attached to RL, they were less likely to fully achieve the competitive advantage attached to RL. Studied firms had knowledge of the economic benefit attached to RL but they did not have knowledge of the environmental benefits, hence they were likely to achieve competitive advantage related to economic gain but were less likely to gain competitive advantage related to environmental benefits. This also means that the RL capability in the MB situation may be in the state of underutilisation, which was due to their limited knowledge of RL. This situation has prohibited the RL capability in MBs to fully align with the theory of RBV.

Third, this research contributes by making explicit that the way MBs address/perceive the cost of RL may be different than those mentioned in the literature for the large business RL. This research explicitly argues that identifying the various cost facets of RL, such as cost avoidance/reduction; visible/known costs and hidden costs together and analysing them in a holistic manner can help make a rational economic decision. This idea, however, has not been considered by the previous researchers for the RL context. Furthermore, this research found that the studied MBs give priority to avoid/reduce the costs of RL and that the hidden costs situation dominates these businesses, which has not been discussed by the earlier researchers for RL context.

Fourth, relative to the theory of TCE, this research contributes by exploring new ways of addressing/perceiving RL costs in MBs. Literature argues that TCE may help firms to make cost decisions based on economic rationality. This research, however, argues that a rational economic decision for RL can be achieved if various cost facets of RL such as cost avoidance/reduction,

actual/visible costs and hidden cost situation are understood and brought together. This study identifies that TCE does not recognise the need to understand these various facets of cost for making rational economic decisions. Hence, it can be argued that identifying and understanding the various facets of cost, as explained in this research, for making rational economic decisions, can make TCE a better theory.

1.4.2 Practical Implications

Practically, this research has implications for practitioners and policy makers of MBs.

- This research has implications for the owner/managers of MBs who can use the outcome of this research to identify, understand and further develop the capabilities, which will also help them to make optimal cost decisions for RL in their businesses.
- This study makes another implication by providing information and guidelines to policy makers and such other organisations who are involved in the environmental management of these types of businesses.

1.5 Summary

This chapter provides details on the overview of the research, which includes the background of the research, research questions, research process, thesis structure, and research contributions and implications. The research process is also outlined, including the types and rationale for various literature reviews, the rationale behind the two-phase study, and methodology and methods used for both phases of the study. This chapter also informs that the research makes a number of key theoretical contributions, with some practical implications.

Chapter 2: Literature Review on Reverse Logistics

2.1 Introduction

Traditionally, supply chain activities concentrated on the forward flow of goods and the flow of information related to it, focusing on stages such as from supplier to manufacturer; from manufacturer to wholesale/distributor; from wholesale/distributor to retailer; and finally, from retailer to the ultimate consumer (Fleischmann et al., 2005; Chopra and Meindl, 2010). However, emphasis on managing business processes across an extended supply chain is growing (Lambert, Cooper and Pagh, 1998). As Beamon (1999) asserts:

> 'The fully-integrated, extended supply chain contains all of the elements of the traditional supply chain […], but extends the one-way chain to construct a semi-closed loop that includes product and packaging recycling, re-use, and/or remanufacturing operations' (p.12).

Consequently, development over the last 20 years shows that dimensions like 'reverse logistics' have been added into the supply chain, which attracts the attention of both academics and practitioners (de Brito, Dekker and Flapper, 2005, p.35).

RL is a concept within logistics and supply chain management (Dowlatshahi, 2000) which mainly deals with the reverse flow to the traditional forward supply chain flow (Stock, 1992; Kopicki, Berg and Legg, 1993). Apart from the economic benefit, RL '*… has become a blanket term for efforts to reduce the environmental impact of the supply chain*' (Rogers and Tibben-Lembke, 2001, p.130). This enhanced supply chain is capable of effectively using resources that were not previously considered or utilised, as goods flowing backwards are valuable resources (Dowlatshahi, 2000). Moreover, RL has more recently been acknowledged as an important strategic aspect within the supply chain management context (Rubio and Jiménez-Parra, 2017), which helps to bring sustainable competitive advantage (Markley and Davis, 2007; Shen and Li, 2015). The section below will provide a more comprehensive explanation of RL.

2.2 Defining Reverse Logistics

RL has taken precedence in academia over the last twenty years (Rogers, Melamed and Lembke, 2012); however, authors such as Beckley and Logan (1948) already emphasised returns without using the term 'reverse logistics'. Guiltinian and Nwokoye (1975) and Murphy and Poist (1989) did the same – they defined reverse logistics without explicitly using the term. While these authors

did not use the term RL, they did lay the foundations for both defining and developing the concept of RL.

Lambert and Stock (1981) were the first to give one of the earliest definitions of RL. They define RL as the process of '*going the wrong way on a one-way street because the great majority of product shipments flow in one direction*' (Lambert and Stock, 1981, p.19). While explaining the function of RL, Murphy (1986) and Murphy and Poist (1989) both give a similar definition, pointing to the same attitude of direction. Murphy and Poist (1989) describe RL as goods within a distribution channel that move from a consumer back towards a producer (Murphy and Poist, 1989). Later, Stock (1992) provides some rationale for the goods to travel back in the supply chain and describes RL as a combination of different activities related to recycling, reuse of materials, substitution, source reduction, and disposal. Kopicki, Berg and Legg (1993) take one step further by adding the types of product that might come under RL. They argue that RL consists of the management and disposal of both hazardous and non-hazardous waste from packaging and products. Kroon and Vrijens (1995) and Stock (1998) hold similar views to Kopicki et al. (1993), who also highlight the expertise needed to execute RL tasks. They argue that the RL activities include the skills required to reduce, manage, and dispose of unwanted goods.

Thierry et al. (1995) came up with the definition for reverse flow of goods, but with a different term – namely 'Product Recovery Management' (PRM). Thierry's definition, however, emphasises the RL aspects as the responsibility of the manufacturer. Thierry defines RL as all those activities that:

> '… encompass the management of all used and discarded products, components, and materials that falls under the responsibility of a manufacturing company. The objective of product recovery management is to recover as much of the economic (and ecological) value as reasonably possible, thereby reducing the ultimate quantities of waste' (Thierry et al., 1995, p.114).

Carter and Ellram (1998), in their definition, place emphasis on source reduction, i.e. decreasing the use of materials. According to this definition, the rationale behind the notion of RL is environmental efficiency.

Further, The European Working Group on Reverse Logistics (Rev Log) and Rogers and Tibben-Lembke (1999) came up with a more detailed definition of RL. The definition given by Rev Log adds the 'sustainable' aspect into it. This definition suggests that RL brings sustainability into the firm.

RL concepts may differ according to the service provider. For instance, some companies may only talk about the recycling of goods, which may include sophisticated features of RL. In this instance, to define the term 'reverse logistics' it is necessary to understand the relationships between the parties involved, as different people may have different views about this phenomenon (Kivinen, 2002).

The definition provided by Rogers and Tibben-Lembke (1999) is one of the most sophisticated and comprehensive definitions (Bernon and Cullen, 2007). According to this definition, RL is:

> 'The process of planning, implementing, and controlling the efficient, cost effective flow of raw materials, in-process inventory, finished goods, and related information from the point of consumption to the point of origin for the purpose of recapturing or creating value or proper disposal' (Rogers and Tibben-Lembke,1999, p.2).

This definition may have been one of the more popular definitions, however other authors like de Brito and Dekker (2004) argue that although goods in the reverse channel may travel backwards, they may not always end up where they originated in the first place – goods can go to any other 'point of recovery'.

The above discussion shows that the definitions of RL lack a largely accepted consensus. However, it also shows a gradual development of the additional thoughts and concepts that have been developed and refined over time. The term 'reverse logistics' is defined in relation to different supply chain stages. Authors including Thierry et al. (1995) have highlighted the manufacturer's role and perspective in defining RL, whereas authors like de Brito and Dekker (2004) capture the essence of all supply chain players (e.g. manufacturers, wholesale/distributors and retailers). In recent years, Bernon and Cullen (2007) have highlighted the involvement of retailers in RL. According to these authors, '*Retail reverse logistics describes the activity of returning goods back through the supply chain with a focus on retailers*' (Bernon, Rossi and Cullen, 2011, p.484). Overall, RL can be characterised by the diverse number of players involved in it, such as manufacturers, wholesale/distributors, retailers and consumers (de Brito, 2003). RL is the opposite to forward logistics which comprises various types of products and packaging, varied disposal options and situations (Tibben-Lembke and Rogers, 2002). Hence, the definition of RL cannot be taken in isolation; rather, the views of various authors make it a more holistic definition.

The review of the RL definition shows that RL is a process which helps products travel back into the supply chain, which is adopted at all supply chain stages (Tibben-Lembke and Rogers, 2002).

However, processing the goods that accumulate in the reverse channel may not be an easy task, neither may it be consistent. Firms, according to their situation and position in the supply chain, may have various ways of approaching to the process of RL. Consequently, there may be both similarities and differences in the aspects of RL between retailers, wholesalers, distributors and manufacturers (Stock and Mulki, 2009). Besides, the RL process is not limited to a company and may be linked with the other supply chain partners (Daugherty, Myers and Richey, 2002; de Brito, 2003). Consequently, past researchers who have studied RL aspects concerning retailers (Bernon and Cullen, 2011; de Leeuw et al., 2016), or manufacturers (Das and Chowdhury, 2012) have used literature concerning both manufacturers and retailers for their review. This review will also highlight the differences, if any, in the aspects related to RL with regards to the various supply chain echelons like manufacturer; wholesale/distributor and retailer. Accordingly, the rest of this chapter will look at the identified key aspects related to processing reversed goods. The aspects which will be discussed in the remaining sections of this chapter are: goods accumulation with its various reasons; drivers of RL; the volume of goods and its effect on RL; the processes of RL including transportation, warehousing and sorting/selecting/inspecting; the disposal options used; the timescale needed; supply chain relationship; and barriers to RL.

2.3 Goods Accumulation

RL starts with the accumulation of goods in the reverse pipe. Hence, businesses may have to deal with various types of product that are likely to end up in the reverse channel. The products can be distinguished as spare parts, packaging, and consumer goods (Fleischmann et al., 1997). De Brito (2003) added several more categories of goods that may have to be reversed back, which may include ores, oils, and chemicals, civil objects, and other transportable materials. Dekker and Flapper (2003) looked at around 60 cases of RL and found that half of their cases dealt with metal products, machinery and equipment, 30% were wood, paper and plastic products, 20% were food products, beverages, tobaccos, textiles, and apparel, and less that than 10% were related to ores and minerals. It is important to understand what the products are (Fleischmann et al., 1997) and why these products are accumulating in the reverse channel, as this again might help in identifying and adopting the proper disposal options (Tibben-Lembke and Rogers, 2002).

The following section will explain the reasons for goods accumulating in the reverse channel, which may help firms to manage them.

2.3.1 Unsold and Excess Goods

Goods can remain unsold and excess (Rajagopal, Kaliani Sundram and Naidu, 2015) for a variety of reasons, including low demand due to off-season, end of holiday season, or low demand due to the newness of the product (Rogers and Tibben-Lembke, 2000). Moreover, product life cycles are shortening and the risk of obsolescence is becoming a major supply chain strategy for providing competitive advantage in markets such as electronics and high-technology products (Bernon and Cullen, 2007). New designs and products are brought into the market at a rapid pace so that consumers become lured into buying more and more new products. While consumers have benefitted from greater variety and enhanced performance, this trend inevitably results in increased numbers of unsold products, increased returns, increased packaging materials, and increased waste (van Hoek, 1999). These goods need to be reversed back into the supply chain for keeping inventory fresh and in demand, leading to indirect economic gains (Tan, Yu and Arun, 2003). There may be other reasons for products remaining unsold and in excess, including '*forecast accuracy and demand variability; promotional activity; new product introduction; product range and safety stock policy; product lifecycles; logistics trade-offs; purchasing policies and high on shelf availability*' (Bernon and Cullen, 2007, p.46), triggering RL. The unsold and excess goods situation is more likely to affect the retailers, who directly deal with the end consumers. As it is hard for the retailer to make an accurate forecast on how much of the goods will be sold out and how much is going to remain unsold and excess (Bernon and Cullen, 2007, 2011).

2.3.2 Customer Returned Goods

Returns policies provided by companies, especially retailers, has become one of the most significant factors that enhances customer satisfaction, consequently leading to customer retention (Smith, 2005; Bernon and Cullen, 2011; Rokonuzzaman and Paswan, 2017). This, again, is one of the significant reasons why goods travel back into the supply chain (Yang et al., 2017). Retailers, who are more likely to deal with the end consumer, are more likely to fall into this spectrum (Tibben-Lembke and Rogers, 2002; Skinner, Bryant and Richey, 2008; Cullen et al., 2013). Firms provide after-sales services to customers by providing a 'repair' facility, which may require the product to flow back in the reverse channel (Giuntini and Andel, 1995; Pinçe, Ferguson and Toktay, 2016). Warranty or guarantee provision, which is adapted for customer satisfaction, may trigger the product to travel back either for repair or for exchange purposes. In

such situations, goods may be repaired in the customer's place or brought back to the business premises to be repaired, triggering the process of RL (Du and Evans, 2008). Customers may also want to return the product because they could not easily operate the goods, the instructions were not clear, or they regretted buying it due to other reasons (Tibben-Lembke and Rogers, 2002; Lee, 2015).

2.3.3 Damaged/Broken/Faulty/Obsolete/Expired Goods

Goods are considered not fit for sale once they become damaged, broken, or faulty. They also become unfit to sell once they become obsolete (Bernon and Cullen, 2007) or expired (Tibben-Lembke, 2002; Sarkis, Helms and Hervani, 2010). One of the most common reasons for goods travelling back into the supply chain, making the reverse aspect important, is because goods get damaged or broken during transport or handling (Thierry et al., 1995; Autry, Daugherty and Richey, 2001; Autry, 2005; Bernon, Rossi and Cullen, 2011; Niknejad, 2014). These reasons trigger RL, as they lead to an accumulation of goods in the reverse channel at all stages of supply chain.

2.3.4 Legislative Take-Back

Traditionally, businesses did not acknowledge or take responsibility for what happens to their products after consumer use, and they simply ignored them (Thierry et al., 1995). Both businesses and consumers landfilled the products that were no longer needed. This process was environmentally detrimental and led to the formation of environmental regulations whereby products could no longer be landfilled. According to new legislation, producers and manufacturers now have more responsibility than before, and the added responsibility is the 'extended producer responsibility' (Lifset, Atasu and Tojo, 2013; Gui et al., 2015). This responsibility covers all those activities that require the firm to effectively manage the entire life cycle of its product, which is not limited to manufacturers, but also applies to retailers (Walther and Spengler, 2005; Khetriwal and Widmer, 2009). Over the past decade, end-of-life take-back law has been legislated both in Europe (EU) and the United States (Prahinski and Kocabasogul, 2006; Lifset, Atasu and Tojo, 2013). Take-back and recovery obligations have been enacted or are underway for many product categories, including electronic equipment in the European Union and in Japan; cars in the European Union and in Taiwan; and packaging materials in Germany (Kannan et al., 2012). The obligations made by government for taking back end-of-life products is one of the drivers of RL

(Srivastava and Srivastava, 2006; Demirel and Gökçen, 2008). Some of the laws are enforced irrespective of the size of the company. For instance, companies who sell 33 kilograms of batteries per year, which may include the selling of a single packet of 4 AA size batteries per day, are obliged to take back the used batteries from their customers, irrespective of their size (Battery Directive, 2008). In this regard, many companies take back used goods based on the regulations (Esenduran, Kemahlıoğlu-Ziyam and Swaminathan, 2016), again triggering RL.

2.3.5 Own Initiative Take-Back

Legislation is not the only factor that triggers RL; companies can use their own initiative to take used goods back at the end of their life. Goods that come back due to their own initiative can be related to both direct or indirect economic gains. Both manufacturers and retailers may get involved in using their own initiative to take the used goods back. Customers' expectations of a 'green' and socially responsible company can be attained by taking the used products back from the consumers (Ranade, 2004; Srivastava and Srivastava, 2006; Kannan, 2009). Companies may take back their used products to preserve their brand status by not letting used products be exposed to alternate markets, which consequently leads to competitive advantages (Newman and Hanna, 1996; Ranade, 2004; Demirel and Gökçen, 2008; Nikolaou, Evangelinos and Allan, 2013). Companies may also take back used goods to prevent the leakage of their technology, either to competitors or other markets (Ranade, 2004). Moreover, recovering products for reuse, either through repairing, remanufacturing or recycling, leads to increased profits and economic advantage (Andel, 1997; Dias, Junior and Martinez, 2016). This act will also help recover waste management costs (Guide, Harrison and van Wassenhove, 2003; Lee, Gen and Rhee, 2009; Chan, Chan and Jain, 2012; Kilic, Cebeci and Ayhan, 2015). In addition, the increased landfill cost (Atling, 1993) may lead companies to use their own initiative to take the products back, as managing waste rather than landfilling has proven to be more economical (Giuseppe, Mario and Cinzia, 2014).

2.3.6 Recalling Goods

Firms may have to recall any faulty products previously sold, which again results in reversing the logistics. Goods recall is the situation which may affect the whole supply chain spectrum, including manufacturers, wholesale/distributers or retailers (Davidson and Worrell, 1992). Companies' motivation to do this is simply to retain customers' belief and remain competitive in the

marketplace (Davidson and Worrell, 1992; Hora, Bapuji and Roth, 2011; Sharma, Garg and Agarwal, 2014; Hsu and Lawrence, 2016). This act compels firms to take their goods back which were previously sold, triggering RL.

2.4 Drivers of Reverse Logistics

The comprehensive reasons for goods accumulating in the reverse channel is discussed in Section 2.3, which already provides some indication as to why firms may want to extract value, manage or dispose of these goods. Consequently, drivers of RL may depend upon the reason and motivation behind managing, extracting value or disposing of these goods. Various researchers, such as Ranade (2004), Ravi, Shankar and Tiwari, (2005), Bernon and Cullen, (2007), Chan, Chan and Jain (2012), and Bouzon et al. (2015) outline a number of drivers for RL. There may be various drivers behind looking after these goods, however economic, legislative, corporate citizenship, and environmental and green issues are considered to be the main ones (Ravi, Shankar and Tiwari, 2005).

Generally, firms can be seen getting involved in RL because doing so provides them with profit (Minner and Kiesmuller, 2012; Dias, Junior and Martinez, 2016), which again has a direct impact on bottom line (Stock, 1998). RL has also been used as a cost-cutting tool (Glenn Richey, Genchev and Daugherty, 2005; Li and Luo, 2016); hence, firms can get both direct and indirect economic gains through RL (de Brito, Dekker and Flapper, 2005; Ravi and Shankar, 2005). RL help firms to identify new markets for discarded products, providing economic gain to firms (Rogers, Rogers, and Lembke, 2010; Dowlatshahi, 2012; Dhakal, Smith and Newbery, 2016). Excess and unsold products, as mentioned in Section 2.3.1, and products that are returned by consumers, as mentioned in Section 2.3.2, may still have some economic value. These products can be traded back in the alternate market for value recovery. These products can also be sent back to supplier for compensation (Tibben-Lembke and Rogers, 2002). Hence, the cost of product returns, handling, management and transportation can be the drivers to manage RL (Bernon, Rossi and Cullen, 2011). Landfill cost for throwing away these products has been one of the motivating factors for firms to reverse the goods back. There is economic benefit in bringing these products back for value-added disposal rather than landfilling them, as paying the landfill cost is not considered economical (Thierry et al., 1995; Flapper, van Nunen, and van Wassenhove, 2005).

RL is a proven alternative use of resources which can be cost effective (Dowlatshahi, 2012). Resources are required to produce goods, and some of the resources consumed, including raw materials, are becoming scarcer (Massari and Ruberti, 2013). As a result, the minerals that provide most of the raw materials and energy in the production of durable goods are being continually depleted (Ferrer and Ayers, 2000; Seifi and Crowther, 2016). At the same time, RL is becoming more economically attractive due to increases in commodity prices (Li and Olorunniwo, 2008). Subsequently, components and materials of used products still have economic value and can be reused (Minner and Kiesmuller, 2012). Firms find using the parts and materials of the used product more economical, resulting in lower production costs. Individual entities like scrap metal brokers, waste paper recycling, and deposit systems for soft drinks bottles also gain economic benefit from these goods (FIeischmann, 1997; Medina, 2008), as they collect, process, and sell these goods to the manufacturer or other recycling agencies for profit. However, authors like Jiang and Tang (2017) acknowledge that these collectors and processors are usually found to be informal and illegitimate workers. Regional Environmental Centre - Turkey (2011), as cited by Kilic, Cebeci and Ayhan (2015) acknowledge that the collection and treatment of these types of waste by informal and illegitimate people causes a substantial threat to environmental and health problems, including risks to labour safety.

Increasing firms' competitiveness (Dekker et al., 2004; Stock and Mulki, 2009; Rajagopal, Kaliani Sundram and Naidu, 2015) and gaining strategic advantage have been identified as other important reasons to perform RL (Sonya Hsu, Alexander and Zhu, 2009; Dowlatshahi, 2012; Hsu, Tan and Zailani, 2016). RL can be used to prevent others from entering the market by protecting their technology (de Brito and Dekker, 2004). For example, as concluded by Dijkhuizen (1997), one of the reasons IBM became involved in the recovery of their product components was to avoid others stealing or copying their technology.

One of the other reasons for the growing concern in recent years for issues like RL, product recovery, remanufacturing and reusing is due to environmental concerns (Srivastava and Srivastava, 2006; Demirel and Gökçen, 2008; Ramos, Gomes and Barbosa-Póvoa, 2014). Firms are now expected to be environmentally friendly because corporate environmental programmes may provide a source of competitive advantage (Menon and Menon, 1997; Molina-Azorín et al., 2015). Public awareness of climate change has grown, and consequently firms are expected to have proactive policies and action plans in place. Even those businesses that have been

acknowledged as environmental leaders are finding that previous actions are no longer sufficient (Higgs et al., 2009), and there is lot more to do in terms of environmental initiatives, including incorporating a good RL programme in their agenda (Hsu, Tan and Zailani, 2016). This aspect is also discussed in Section 2.3.5. Nevertheless, RL can be seen as a tool to initiate the environmental philosophies related to phenomena such as extended producer responsibility (Sachs, 2006), take-back legislation (Atasu, van Wassenhove and Sarvary, 2009), closed loop supply chain (Dekker et al., 2004), product stewardship (Michaelis, 1995), cradle to cradle (Kumar and Putnam, 2008), circular economy (Andersen, 2007) and sustainable supply chain (Ashby, Leat and Hudson-Smith, 2012). The core concept of all these terminologies is like that of RL, which is to collect back and extract value from the products that are discarded both by consumers and businesses (Dhakal, Smith and Newbery, 2016).

Implementation of RL would not only allow cost savings in inventory but can be taken as a tool to improve customer loyalty (Kannan, 2009; Lee, Gen and Rhee, 2009; Hsu, Tan and Zailani, 2016). RL provides a green image for firms by increasing the demand of environmentally conscious customers for their products (Demirel and Gökçen, 2008; Hsu, Tan and Zailani, 2016). Besides, providing a liberal return policy will allow customers return their products to the firm, and consumers are attracted to retailers with a good returns policy in place (Skinner, Bryant and Richey, 2008; Pei, Paswan and Yan, 2014). Firms can use the data related to returned products in the improvement of product design, thereby by enhancing brand equity (Biderman, 2006). Additionally, an enhanced knowledge of product returns can help in identifying areas in operations such as manufacturing or marketing, where corrective actions might be necessary (Stock and Mulki, 2009).

Companies who are proactive and knowledgeable may have a deeper understanding of the benefits of RL, and take the initiative of incorporating a RL programme in their firm for economic, environmental, or CSR reasons – however, not all firms do this (Lau and Wang, 2009). Due to depleting resources, scarcity of landfill areas, and the adverse effects on human health, policy makers have formulated take-back laws for certain selected products whereby firms are becoming compelled to take back the goods at the end of their life (Rogers and Tibben-Lembke, 1999). As mentioned in Section 2.3.4, firms now have a responsibility to take back products at the end of their life, which consequently generates the legislative driver for RL (Kannan et al., 2012).

Broadly speaking, firms may become motivated to manage the products accumulated in the reverse channel due to both the threats and opportunities attached to it. The benefits if these products are managed, and threats if not managed, may drive companies to follow a RL programme. The drivers discussed in this section also seem to be overlapping, and the economic drivers seem to be taking precedence over all others (Bouzon et al., 2015). If closely examined, all the drivers may have some direct or indirect economic benefit behind them. For example, a RL programme initiated to become an environmentally friendly company may lead to a positive green image. Consequently, this act may lead to customer loyalty, which again leads to indirect economic gain (Hsu, Tan, and Zailani, 2016).

There may have been various good reasons for the goods to be reversed back in the supply chain; however, the goods accumulation in the reverse channel has always been a headache for managers as they need to go through the process, which is both complex and costly (Mukhopadhaya and Setoputro, 2006), as managing RL is not an easy task. Besides, literature reveals that volume of the accumulated goods can significantly affect the way firm process these goods, which will be explained in the section below.

2.5 Volume of Goods Accumulation

One of the significant reasons for the study of RL is the large volume of goods that accumulates in the reverse channel, which again becomes the factor that brings adverse effect, both economically and environmentally (Rogers and Tibben-Lembke, 2001; Dias, Junior and Martinez, 2016). There has, however, not been adequate research to show how much of the goods can accumulate in various categories. Consequently, not having enough prior research to show exactly how much of the goods remain in excess or unsold in a company for a period of time can be a problem. However, as noted by Bernon and Cullen (2007), one of the main aspects that triggers an interest in RL is the volume of unsold and/or excess goods. Particularly in retail sector, these goods need to be moved back into the supply chain for keeping inventory fresh and in demand, which may lead to indirect economic gains (Tan, Yu and Arun, 2003).

Unlike for the volume of goods in the unsold and excess category, both in the past and in recent years, there have been numerous researchers who have emphasised the scale of goods accumulation in the customer return category. Hence, there have been various viewpoints on the volume of goods accumulation in the customer return category. Blumberg (1999) suggests that

there will be a significant rise in after-sale service, as a repair service. Blumberg, based on the surveys and interviews carried out in more than 400 medium- and large-scale manufacturing companies, estimated the multiple annual growth rate for repair services in the United States to be 14.9%, and the compounded annual growth rate for repair services worldwide to be 15.8%. This shows how the volume of goods that may come back via the repair category is escalating. Higher customer return has been the main reason for firms undertaking RL (de Leeuw et al., 2016). Rogers and Tibben-Lembke (1999) report that return rates are very much industry-specific, and cite that the rates range from 5% to 50% in many industries. Likewise, Dowlatshahi (2012) suggests similar, at 3% to a maximum of 40% depending on the industry. Talking about the business type, Robbins-Gentry (1999) estimates that product return could range from 15% for a mass merchandiser to 35% for e-commerce retailers, as the return rates in e-commerce are, for instance, 35% (Robbins-Gentry, 1999) and 50% (Pogorelec, 2000). Moreover, among retail types, researchers have found that the return rates in e-commerce and catalogue retailing are the highest, at 18% (Robbins-Gentry, 1999) and 20% respectively (Daugherty, Autry and Ellinger, 2001). Likewise, in mail order, especially ladies fashion, return rates of 60% are common (Wheatley, 2002). Rogers and Tibben-Lembke (1999) identified returns for different industries, with figures being recorded at 50% (magazine publishing), 20-30% (book publishers), 18-35% (catalogue retailers) and 10-12% (electronic distributors). Similarly, Bernon and Cullen (2007) for UK context identified return rates of 30% for catalogue retailing, 4% for durable products, 10% for books, and 10% for music and entertainment. Returns are, and always have been, a fundamental part of retailing (Raimer, 1997). Firms to satisfy and consequently retain customers must provide a returns policy (Smith, 2005; Bernon and Cullen, 2011) and take the goods back from their customers (Skinner, Bryant and Richey, 2008; Cullen et al., 2013). Looking at the trend, it can be estimated that return rates are growing (Langnau, 2001; Stock, 2001; Guide et al., 2006). Some studies have analysed the return rates in terms of GDP, which can project the return figure as quite severe. In the US, consumers return products valued at more than $100 billion each year, which is more than the GDP of 66% of the countries in the world (Stock, Speh and Shear, 2002). The volume of customer-returned goods is escalating, and the total retail returns in the UK have been valued at £6 billion a year (Bernon and Cullen, 2009).

It is not just the returned goods that accumulate, but goods that have been damaged and broken (Ravi and Shankar, 2005; Cullen, Bernon and Gorst, 2010; Sarkis, Helms and Hervani, 2010;

Rogers, Melamed and Lembke, 2012) also get accumulated. Goods also become obsolete (Lawrence et al., 2002; Verma, 2015) and expire (Goodwin III, 2003; Vaishnavi et al., 2016). This also indicates that the volume of goods in these categories are not less, however not having prior research on the volume within these categories is a problem.

There is also an indication that goods that may have to be taken back due to own initiative or due to legislation is escalating. The volume of electronic-related waste generation globally is anticipated to reach 93.5 million tonnes in 2016, up from 41.5 million tonnes in 2011, at a CAGR of 17.6% from 2011 to 2016 (MarketsandMarkets.com, 2011, cited by Hong, Lee, and Chang, 2014; Yu, Spiesz and Brouwers, 2014). Accordingly, out of the 20 largest US exporters, five specialise in shipping waste paper and one specialises in scrap metal (MacCormac, 2008, cited in Rogers, Rogers and Lembke, 2010). Proactive firms have now realised the benefits of RL. Even the firms who may not understand this as a problem are bound to take back goods anyway due to legislative reasons. In this regard, the volume of goods – either in the category of the own initiative take-back or in the legislative category – are growing rather than decreasing.

Companies may also have to recall faulty products that have already been sold. Research reveals that huge number of goods has been recalled in the past, and to maintain their status quo, companies will recall more goods in the future (Dai, Tseng and Zipkin, 2015), increasing the volume of the goods in this category.

Due to the complexity and costs attached to reversing the logistics, firms are trying their best to avoid accumulation in all categories. Stock, Speh and Shear (2006) suggest that returns could be divided into two categories: controllable returns, which can be avoided, and uncontrollable returns, which companies can do little or nothing about. Due to higher operating costs, firms should be more cautious about RL and can use some preventive measures to avoid or lessen the volume of accumulation, rather than let the situation escalate. For instance, to avoid customer returns, firms can tighten more liberal returns policies (Richey, Genchey and Daugherty, 2005) by gatekeeping and avoiding returns where possible (Rogers et al., 2002). To avoid goods accumulation in the unsold and excess or obsolete and expiry category, firms can analyse the product lifecycle and manage the goods accordingly (Tibben-Lembke, 2002). Again, training staff (Bernon, Rossi and Cullen, 2011); advising customers about the use of the product; repairing or repair facility; aftersales service; integrating marketing and logistics; proper forecasting; proper inventory management; integration of the activities related to collaboration, integration and

evaluation; managerial decision making and know how; enhancing and improving the product quality; and better accounting systems (Bernon and Cullen, 2007) are just some of the measures that can be implemented to avoid or reduce the volume of goods accumulation, which is again believed to help reduce the cost of RL. These measures, however, may not always result in a win/win situation. For instance, avoiding and gatekeeping returns by making the return policy tighter may result in cost saving in the short term, but may create an adverse effect in the long run. A Harris Interactive survey, as cited in Sonya Hsu, Alexander, and Zhu (2009), indicates that 90% of the respondents' purchasing decisions were based on their retailer's return policy and process. Likewise, a survey conducted by Smith (2005) found that customers' major purchasing decisions were based on the firms' return policy. Hence, it is likely that a company's tighter returns policy may distance their customers, resulting in a loss of market share.

The volume of the goods that are coming back are neither clear nor stable, and in some cases are unpredictable, creating a state of confusion to the businesses (Biehl, Prater and Realff, 2007; Lee and Chan, 2009). Once they know the volume of goods, firms can make decisions around how to manage, extract value, or dispose of these goods. For instance, a large volume of accumulation means that firms can enjoy the advantage of 'economies of scale' (Autry, Daugherty, and Richey, 2001). Besides, literature reveals that it is more practical for businesses who deal with the higher volume of goods to invest in RL-related activities (Johnson and Leenders, 1997). Also, businesses who experience higher return rates of products are more likely to gain expertise related to RL (Johnson, 1998). Smaller firms may have small volume of accumulation; however, they may equally need to worry about how to manage these products. Due to their resource constrained nature (Storey, 1996), these companies may have a devastating effect, both economically and environmentally, if they do not manage these goods, even if they are small in volume.

One of the factors required to calculate the operational costs of RL, among other factors, is to understand the volume of goods that has accumulated in the reverse channel. However, this volume of accumulated goods can only be known if the businesses kept their records: '*… the exact amount of reverse logistics activity is difficult to determine because most companies do not carefully track reverse logistics costs*' (Rogers and Tibben-Lembke, 2001, p.134). Cullen et al. (2013) suggest that there was '*a significant lack of visibility and management reporting in this area*' (p.216). Studies show that the volume of goods that has accumulated in the reverse channel

is known only through estimation, as firms still do not see the management of RL as an important aspect of their operations (Rogers and Tibben-Lembke, 2001; Bernon and Cullen, 2007; Cullen et. al., 2013). Authors such as Vijayan et al. (2014) suggest that firms who understand the significance of RL are more likely to adopt this in their business strategy. Nevertheless, forecasting goods accumulation in the reverse channel is not always easy (Cheng and Lee, 2010; Das and Chowdhury, 2012). In a retail context, future planning and forecasting for reverse goods is difficult, because individual customers initiate the RL, and not the firms (Tibben-Lembke and Rogers, 2002). Experts, may have already come up with the various ways of forecasting future sales volumes but using techniques to calculate the volume of goods in the reverse channel is in its preliminary stage. For instance, Lee and Chan (2009) suggested developing the RFID (Radio Frequency Identification) based RL system which would help in calculating the volume of goods. Mutha and Pokharel (2009) suggested a calculated network design for RL which would help in optimizing the quantity of RL goods for the purpose of remanufacturing. Overall, it is always important for firms to understand the volume of goods accumulation, as this is one of the main aspects that motivates firms to perform RL (Autry, Daugherty and Glenn Richey, 2001; Richey et al., 2004; Bernon, Rossi, and Cullen, 2011), as this will also allow firms to understand the cost and expertise required to manage these.

Volume of goods and the way a firm manages these volumes may play a significant role in the processing of these goods. However, understanding the various steps the firm may need to go through to process these goods is equally important, which will be explained in the section below.

2.6 Processing Reverse Logistics

The above section explained that goods can accumulate in the reverse channel of all supply chain stages. The above section also explained the reasons for the products accumulating in the reverse channel, along with factors that drive firms to manage, extract value, or dispose of these goods. In managing these goods, companies may have to process these goods in various ways. The review of the literature confirms that the goods may have to go through a number of processes (Stock and Mulki, 2009), and the key processes include transporting or moving the goods from one place to the other; storing/warehousing the goods and sorting/selecting/inspecting/testing the goods. These processes are not limited to any one supply

chain stage, and all the supply chain partners are affected by the RL process, which will be discussed in the sections below.

2.6.1 Transportation/Collection/Movement of Goods

Reversed goods may need transporting from one place to another (Giuntini and Andel, 1995; Rajagopal, Kaliani Sundram and Naidu, 2015). The rate, quality and quantity of the products arriving into the reverse channel is uncertain which makes the whole process chaotic (Tibben-Lembke and Rogers, 2002; Lee and Chan, 2009). As in the retail context, future planning and forecasting for reverse goods is difficult because individual customers initiate the RL, and not the firms (Tibben-Lembke and Rogers, 2002). Fleischmann et al. (1997), in general for all supply chain stages, point out that one of the largest differences between forward and RL is the number of origin and destination points. In forward logistics, product movement is typically from one origin to a different destination; conversely, reverse logistics deals with the opposite movement of the product from many different origins to one destination. This difference makes the activity more complicated and intense (Tibben-Lembke and Rogers, 2002). In the retail situation, goods may be brought back by the customers (Bernon and Cullen, 2007), but in the case of manufacturers, they may need to be collected from the customers or collected from certain pick-up points (Stock and Mulki, 2009). Consequently, costs involving collection and transportation (Srivastava, 2008; Bernon, Rossi and Cullen, 2011) may be incurred. This type of complication requires a proper, comprehensive and optimal vehicle routing network, and a well formulated RL network design. Hence, the transportation of goods in RL must be carried out in such a manner that the cost of doing so is optimal (Srivastava, 2008; Demirel, Demirel and Gökçen, 2016).

2.6.2 Storage and Warehousing of Goods

The products that come back are to be stored/warehoused until a decision is made regarding what to do and where to send them (de Koster, de Brito and van de Vendel, 2002; Dowlatshahi, 2012). The storage and warehousing situation will have to be dealt by all supply chain stages as goods accumulate in all supply chain stages. Accordingly, the cost of storage and warehousing is associated with the costs of RL (Dowlatshahi, 2012). Firms either have the same space for both reverse and forward logistics, or in some cases they will have separate storage allocated for the reversed goods, which may result in an increased storage cost (Bernon and Cullen, 2007). Whether the reversed goods stay in the same warehouse as the forward logistics or are stored in

a different warehouse, the length of stay plays an important role. If they stay longer in the warehouse, reversed goods not only lose value by becoming damaged and obsolete (Adenso-Díaz, García-Carbajal and Gupta, 2008), but also take up space for a longer period of time, which could be utilised for storing and processing other products (Tan, Yu and Arun, 2003). In a retail context, a Central Return Centre (CRC) may try to sell or get rid of these reversed products as soon as possible to create more space (Tibben-Lembke and Rogers, 2002), as the costs associated with RL can be increased if the product stays longer in the warehouse (Bernon, Rossi and Cullen, 2011).

2.6.3 Sorting, Selection and Inspection of Goods

The goods that come back into the RL route are not uniform in quality, which is another challenge faced by businesses (Mutha and Pokharel 2009; Sharma et al., 2011; Niknejad and Petrovic, 2014). The packaging of the goods may be opened, the goods may have been used, and in the case of goods with various parts, these may have been disassembled, which is another challenge faced by manufacturers, wholesale/distributors or retailers. Hence, standardising the packages and pallets, as is in forward logistics, becomes impossible in the case of reversed goods (Tibben-Lembke and Rogers, 2002). Again, depending on the type and quality of these products, proper sorting, selection, and inspection may be required, which is another added cost (de Brito et al., 2005; Rajagopal, Kaliani Sundram and Naidu, 2015). This process may be costly and time consuming, but it allows firms to understand the actual state and condition of the goods, which again will guide them in making a proper disposal decision.

2.7 Disposal of Goods

This research has looked into some of the generic disposal options mentioned in the literature for the goods accumulated in the reverse channel.

Firms, according to their convenience and situation, may use the options mentioned in Table 2.1. These options can again be used interchangeably by retailers or manufacturers. Nevertheless, firms need to carefully consider various factors which may affect the choice of the most optimal disposal options (Ravi, Shankar and Tiwari, 2005; Dyckhoff, Lackes and Reese, 2013). The available disposal options with factors affecting their choice will be discussed in the section below.

Disposal option for retailers	Disposal options for manufacturers
Return to vendor	Direct reuse/resale
Sell as new	Repair
Repackage, sell as new	Refurbish
Sell via outlet	Remanufacture
Remanufacture/refurbish	Cannibalisation
Sell to broker	Recycle
Donate to charity	Incineration
Recycle	Landfill
Landfill	
(Tibben-Lembke and Rogers, 2002, p.2)	(Thierry et al., 1995, p.118)

Table 2.1 Disposal options for reversed goods

2.7.1 Return to Vendor/Supplier

Retailers may be able to send their unwanted goods back to their suppliers (Shen and Li, 2015). Suppliers may then be able to take the goods back and sell them on an alternative market (Krumwiede and Sheu, 2002; Tibben-Lembke and Rogers, 2002). However, whether the firms are able to return these unwanted goods to their supplier may depend on the type of agreement they initially have with their suppliers (Yoo, 2014). Sonya Hsu, Alexander and Zhu (2009) note that the vendor contract is very important and is a key determinant in the RL process. How much time and effort the retailer must invest in handling RL may be, to an extent, determined by whether it is the vendor or the retailer driving the relationship. Nevertheless, information flows to supply chain partners, especially where decisions need to be made, is not always adequate (Sonya Hsu, Alexander and Zhu, 2009) which may create problems in timely sending of goods back to the supplier.

2.7.2 Resale As New, or Repackage and Sell As New

The next best option is to try to sell the product as new. However, the '*logistics value generation may involve repackaging returns and selling them as new*' (Sonya Hsu, Alexander and Zhu, 2009, p.517). The remaining unsold and excess products can be sold in store by either reducing the price (Autry, Daugherty and Richey, 2001; de Leeuw et al., 2016) or displaying them in a different

way (East, 2013). Rogers and Tibben-Lembke (2001) found that 17% of products are resold in the state they already are. When returned by customers, goods may not be in the condition that they were previously sold. Some of these items may need to be repackaged, which may further increase the cost of managing RL (Tibben-Lembke and Rogers, 2002).

2.7.3 Direct Reuse

In recent years, due to the increased price of raw materials (Li and Olorunniwo, 2008), the end of life products that are brought back into the company can be used as resources for manufacturing, which can be cost effective. Again, this will prevent waste by diverting materials from landfills and conserving natural resources (Beullens, 2004; Gharfalkar, Ali and Hillier, 2016) thereby helping in resource reduction (Ravi, Shankar and Tiwari, 2005; Demirel & Gökçen, 2008). This act may again trigger RL.

2.7.4 Sell Via Outlet

If the product cannot be returned to the supply chain or cannot be sold in store, firms look for outlets and secondary markets to sell their products and extract value (Johnsons, 1998; Rajagopal, Kaliani Sundram and Naidu, 2015; Dhakal, Smith and Newbery, 2016). Firms prefer to sell these goods via 'online and traditional auctions', however more research is required to understand the best possible way for the firms to dispose of these goods for extracting maximum value (Dhakal, Smith and Newbery, 2016). Rogers and Tibben-Lembke (2001) found that nearly 7% of goods were sold via these outlet stores. Secondary markets are one of the most frequently used options to extract value from products, as it has been found that there is a significant number of goods flowing into various types of secondary markets (Dhakal, Smith and Newbery, 2016).

2.7.5 Sell to Brokers, Dismantlers and Recyclers

Brokers are the parties who assist firms in extracting value from their goods. Firms who want to concentrate on and specialise in forward logistics prefer to use these parties to get jobs related to RL carried out. These days, 'third party logistics' can work as brokers for businesses and assist them in extracting value from the goods that accumulate in the reverse channel (Azadi and Saen, 2013). These parties like to buy the goods in large quantities and are reluctant to take jobs related to smaller quantities of goods (Rogers, Melamed and Lembke, 2012). Rogers and Tibben-Lembke (2001) found that almost 7% of the companies they studied used these methods to sell

their products. According to the law, both retailers and manufacturers are obligated to recycle their products (Bernon and Cullen, 2007) which may require both recycling and dismantling, or selling the product to the recyclers and dismantlers.

2.7.6 Donate to Charity

Disposing of unwanted goods can be achieved by donating them to charity (Li and Olorunniwo, 2008; Lambert, Riopel and Abdul-Kader, 2011), as '*donating obsolescent but still usable product to charity may generate tax advantages for the company that exceed what the company would receive from selling the product*' (Tibben-Lembke and Rogers, 2002, p.273). In other cases, for brand controlling purposes, companies may instead donate the product to charity and protect the brand rather than selling to secondary markets (Rogers, Melamed and Lembke, 2012).

2.7.7 Repair, Refurbish, Remanufacture and Recycle

Reuse, repair, refurbish, remanufacture and recycle have been the options discussed several times by various authors including Thierry et al. (1995), Blackburn et al. (2004), and Krikke, Bloemhof-Ruwaard and van Wassenhove (2003). Remanufacturing and recycling demands higher levels of investment and commitment; however, repair and refurbishment are considered as tasks that require '*limited product disassembly and reassembly*' (Thierry et. al., 1995, pp.114-135). In this instance, repairing and refurbishing have become processes, among others, that help the retailers cut their costs (Bernon, Rossi and Cullen, 2011). Rogers and Tibben-Lembke (2001) found that 15.5% of the products are remanufactured or refurbished.

2.7.8 Cannibalise

Cannibalisation refers to the reduction on the purchase and sale of the items that are no longer selling well in the marketplace (Pancras, Sriram and Kumar, 2012). Cannibalisation has become a significant aspect in the prospect of RL, as this helps the company to manage the product according to their sales or popularity level (Bernon, Rossi and Cullen, 2011).

2.7.9 Send to Central Return Centre (CRC)

The CRC helps firms to process all their regional returns in a Centralised Return Centre. When a customer returns goods to the retailer, the retail store collects the goods and sends them to the CRC (Tibben-Lembke and Rogers, 2002). Sonya Hsu, Alexander and Zhu (2009) note that the activities or operations in the CRC in a retail context is important because it increases the retailers'

profitability by reducing costs. The CRC helps firms to execute the RL task because it provides economy of scale, and gives standardised information about the product which helps the planning cycle of the retailer so that an informed decision about the further development of the product can be made (Sonya Hsu, Alexander and Zhu, 2009).

The CRC may be the most appropriate option for the firms to execute and process their returns, however there are a number of problems associated with it. For instance, a large quantity of products available for sale in the reverse channel can indicate the failure of that product (Tibben-Lembke and Rogers, 2002). In other cases, Sonya Hsu, Alexander and Zhu (2009) found that the biggest problem faced by CRCs is the time required for managing damages when no return authorisation is forthcoming from the vendor. The CRC is not in a position to decide anything because they don't know how much it is going to cost (Sonya Hsu, Alexander and Zhu, 2009). The link between vendors and the CRC information sharing can be weak, and improving and updating the relationship between CRC and the vendors by sharing the information between them can prove very beneficial in the process of RL (Sonya Hsu, Alexander and Zhu, 2009). Min et al. (2006, cited in Bernon, Rossi and Cullen, 2011) discussed the aspect of centralised versus decentralised return centres to minimise overall operating costs. Literature reveals that larger businesses more often use CRC for sending their goods back from various regional points (Rajagopal, Kaliani Sundram and Naidu, 2015); hence, smaller firms who operate as a single entity will not be able to reap the benefit of the CRC.

2.7.10 Incineration and Landfill

With incineration and landfill capacities in decline, businesses are looking to recycle or reintegrate used goods either in part or wholly for further use (Fleischmann et al., 2000). This has resulted in increasing issues such as RL, which may help to recover products via remanufacture and reuse (Demirel and Gökçen, 2008). However, '*if companies cannot sell the product as is, and cannot remanufacture or refurbish it, there is one final option, short of recycling or landfilling the produc*t' (Rogers and Tibben Lembke, 2001, p.139). Even if it is not the preferred decision, one of the last options in the process of RL remains landfilling (Kim et. al., 2006; Achillas et al., 2010; Kinobe et al., 2015). This option, however, creates unfavourable effects both economically and environmentally (Vaverková et al., 2013).

The volume of accumulation may affect decision making and what disposal decision should be taken – and why – is equally important. However, if value from these goods is to be maximised, considering the time factor can become an equally important decision, which will be explained in the section below.

2.8 Time Required

Because of the nature of products in the reverse channel, the RL process can be very time intensive (Sonya Hsu, Alexander and Zhu, 2009). Nevertheless, '*… a strategic factor of the reverse-logistics system should reflect the basic logistics rule of right time, right place, right price, and right quantity*' (Dowlatshahi, 2000, p.144). The longer a product stays in the reverse channel, the more chance there is of the product becoming obsolete, and the cost of obsolesce may be significant (Lieckens and Vandaele, 2007; Min and Ko, 2008; Lee and Chan, 2009). Rogers and Tibben-Lembke (2001) found that over 15% of the respondents studied take two days or less; over 40% process returns in more than two weeks; and 15% take more than one month to process these goods. Products staying longer may also mean increased cost of storage and lack of space for new products. The goods constantly need to be reversed back into the supply chain in order to keep the inventory fresh and in demand, leading to indirect economic gains (Tan, Yu and Arun, 2003). Speed was not considered a priority in terms of RL, as speed was important only in terms of forward logistics (Tibben-Lembke and Rogers, 2002). However, authors such as Bernon, Rossi and Cullen (2011) for retail context, found that the time value of the product was critical. Lieckens and Vandaele (2007), for general supply chain, assert that inventory holding costs and lead times relate to products' cycle time. A significant amount of time is needed to determine where a particular item will be shipped, which is a major problem in the case of RL (Tibben-Lembke and Rogers, 2002). Blackburn et al. (2004) evaluated network design from the perspective of the time value of products. He compared the requirements of high and low clock speed industries, where the life cycle of products is a key factor in the design of RL networks. Viewed in this way, network configuration is a trade-off between speed and cost efficiency. For products with short life cycles, a responsive supply chain is required to maximise the opportunity for re-use before they become obsolete (Bernon, Rossi and Cullen, 2011). If the products sit in the reverse channel for longer, it is more likely that they will lose more of their value, and subsequently become obsolete.

Bernon, Rossi and Cullen (2011), for retail context, found that product life cycles were diminishing in almost all product categories, and hence the speed in managing the reverse flows had a significant impact on the asset recovery levels obtained. Also, the asset value of a returned product is normally significantly lower than the original cost of the item, while timing of returns can have implications on the liquidity for retailers, as they can generate periodic negative cash flows (Horvath, Autry and Wilcox, 2005).

2.9 Relationship and Collaboration

In one of the earliest comprehensive pieces of literature on RL, de Brito (2003) reveals that various 'actors' and 'players' become involved in the process of RL as RL affects all supply chain stages. Even today, researchers agree with this phenomenon. Hence, due to the nature and complexity of RL, there is every possibility that firms will relate with various parties in the process of RL. Businesses may use many different alliances, partnerships and collaborative options such as the use of third party logistics (Krumwiede and Sheu, 2002; Venkatesh et al., 2015), the use of fourth party logistics (Mukhopadhyay and Setaputra, 2006; Hingley et al., 2011), supply chain relationships (Stank, Keller and Daugherty, 2001; Daugherty, Myers and Richey, 2002; Lau and Wang, 2009), symbiotic relationships (Turner, LeMay and Mitchell, 1994), eco-non-profit organisations partnership (Kumar and Malegeant, 2006), and local recyclers (Ravi, Shankar and Tiwari, 2005) for executing all or some of their RL-related tasks. It is not in the scope of this study to cover all types of relationships; however, the supply chain relationship will be highlighted as it has been found to be one of the most fundamental relationships.

- Forward supply chain actors (supplier, manufacturer, wholesaler, retailer, and sector organisations),
- Specialised reverse chain players (jobbers, recycling specialists, dedicated sector organisations or foundations, pool operators, etc.),
- Governmental institutions (EU, national governments, etc.), and
- Opportunistic players (such as a charity organisations).

Table 2.2 Players and Actors in Reverse Logistics (de Brito, 2003, p.65)

The relational norm for understanding and implementing RL-related tasks has been highlighted by various authors such as Smirnov et al. (2003), Lau and Wang (2009), Miemczyk (2008), Janse,

Schuur and de Brito (2010), and Morgan, Richey and Autry (2016). Cairncross (1992) explains that companies are realising that the individual attempts made at product retrieval make only a little logic, both economically or environmentally, and therefore strategic alliances are made with various members of the supply chain to work together. Chan (2007) suggests that RL is normally managed poorly due to the self-centredness of various firms, and therefore suggests that RL call for support of more than one firm to make the system more pro-active and collaborative.

The relationships between firms are seen as a valuable resource, because identification and evaluation of the potential values of combining resources and capabilities and selecting governance structure minimises costs, thereby enhancing efficiency (Teece, Pisano and Shuen, 1997). Distributing the information and organising with other network associates and firms within the network, for example Original Equipment Manufacturers (OEMs), distributors, and logistics service providers (LSPs) would enable the projection and development of new and innovative products and processes, leading to enhanced customer satisfaction, reduced rates of return, and competent handling of returns (Hsiao, 2010). Strategic alliances and supportive arrangements between firms taking part in RL initiatives are essential, due to the complication and uncertainty attached with RL. Uniting resources and developing competences for RL processes are specific to associates in RL networks, which at least have the potential to provide competitive paybacks such as lowering costs for recovery and increasing revenues from parts and material sales (Miemczyk, 2008). Management of the knowledge can be used for logistics networking. Smirnov (2001) recognises multi-agent systems for knowledge logistics. Smirnov et al. (2002) describe the Knowledge Source Network configuration approach (KSNet-approach) for knowledge logistics through knowledge fusion. Smirnov (2001) offers a profile-based configuration of knowledge supply networks in the worldwide business information setting. In this regard, an ongoing revolution along with knowledge procedures are required for the progressive conduct of RL processes (Turner, LeMay and Mitchell, 1994) where alliance with supply chain partners can play a significant role (Lau and Wang, 2009).

The relationship between firms is seen as a valuable resource because identification and evaluation of the potential values of combining resources and capabilities and selecting governance structure minimises the costs, thereby enhancing efficiency (Williamson, 1981; Teece, Pisano and Shuen, 1997; Dyer and Singh, 1998). Consequently, authors such as Atkins and Harrison (2013) found that the integrated governance arrangement advanced through

increased supplier competence attached with higher levels of knowledge and information collations were revealed to be significant features in the formation of a RL system. Nguyen (2012) explains the behaviours and aspects related to the network and collaboration between firms on an operational level. This study suggests that companies have realised the '*competitive advantages and strategic roles of cooperation, e.g. sharing resource, improving capabilities, reducing costs, complying with the laws, and improving corporate image*' (Nguyen, 2012, p.17), and therefore in a progressive manner, have united with their associates in the processes of RL.

Relationship plays an important role in RL, however alliance with other supply chain partners may not always be favourable. For example, a lack of legislation and economic incentives minimises the willingness of manufacturers to implement RL. This, in turn, reduces their initiative to invest in RL infrastructure and technology, which again limits the scope for collaboration among supply chain partners and competitors to attain greater efficiency through economies of scale (Lau and Wang, 2009). Authors including Daugherty, Myers and Richey (2002), Lau and Wang (2009), Pfohl, Bode and Nguyen (2012), and Aitken and Harrison (2013) also hold a similar view, and concede that gaining from such relationships may be subject to conditions.

Researchers, however, hold the view that the problems related to alliances can be solved. For example, Atkins and Harrison (2013) found that the 'supplier capability', 'knowledge codification' and 'transaction complexity', as the regulating features, are capable of improving the early structure on buyer-supplier associations that is merely grounded on 'trust' and continued commitment. It is more likely that the partners gain more from the relationship if they are committed to the relationship. Daugherty, Myers and Richey (2002) suggest that the more partners (buyer-seller) are committed to the relationship, the more likely they are to gain value from factors like information systems (IS) which further enhances the performance in 'operating', 'financial' and 'satisfaction-related performance'. Nevertheless, '*reverse logistics is developed with inter-organizational networks and in relationship with different partners in the supply chain*' (Pfohl, Bode and Nguyen, 2012, p.89), where partners work together for the enhancement of competitive advantage.

The operative attribute linked to information sharing and collaboration positively contributes to RL performance (Olorunniwo and Li, 2010). However, the 'power in buyer-supplier relationships' may be one of the dominating factors that may decide whether businesses benefit from their supply

chain relationship (Hingley, Lindgreen and Grant, 2015, p.6), which may also be the case for supply chain relationship in reversing the logistics.

2.10 Barriers to Reverse Logistics

RL may be full of benefits, however there are several barriers in implementing the RL programme. These barriers bring challenges to management which need to be carefully tackled (Ravi and Shankar, 2005; Sharma et al., 2011). Prior researchers have not given enough attention to the barriers to RL (Prakash, Barua and Pandya, 2015) which may be a problem. Authors such as Abdulrahman, Gunasekaran and Subramanian (2014) concede that barriers to RL has tended to be the focus for more developed countries and that there is less research on this issue for developing countries. RL barriers can be country- or industry-related (Abdulrahman, Gunasekaran and Subramanian, 2014); hence, a holistic view of the barriers for RL is only possible through the imperial studies within and across various industrial sectors (Lau and Wang, 2009; Jindal and Sangwan, 2011). One of the earliest comprehensive explanations of barriers to RL has been provided by Rogers and Tibben-Lembke (2001), who identify 'importance of RL to other issues' and 'company policies' as the top most barriers in the hierarchy. Rogers and Tibben-Lembke (2001) studied barriers together for manufacturers, wholesalers, retailers, and service providers.

Barrier	Percentage of Respondents
Importance of reverse logistics relative to other issues	39.9%
Company policies	35.4%
Lack of systems	35.1%
Competitive issues	32.1%
Management inattention	27.3%
Personnel resources	19.3%
Financial resources	18.9%
Legal issues	14.1%

Table 2.3 Barriers to Reverse Logistics (Rogers and Tibben-Lembke, 2001, p.143)

Since then, various authors have interpreted barriers to RL in a number of ways, which is highly influenced by the methods they have used to identify, analyse and compare these barriers (Ravi and Shankar, 2005; Janse, Schuur and de Brito, 2010; Sharma et al., 2011; Gupta, 2013;

Abdulrahman, Gunasekaran and Subramanian, 2014, Prakash, Barua and Pandya, 2015; Bouzon et al., 2016). The barriers these authors have identified have also been influenced by the studied industry. Ravi and Shankar (2005), for the automobile industry, came up with 11 various RL barriers which were built on the barriers posited by Rogers and Tibben-Lembke (1998). Ravi and Shankar (2005) used Interpretive Structural Modelling (ISM) to understand the mutual influence of the 11 identified barriers. They found 'lack of awareness about reverse logistics' and 'financial constraints' (Ravi and Shankar, 2005, p.160) to be the main barriers, which they suggest may have driven other barriers. These authors concede that:

> 'It is very essential to understand the mutual relationship among the barriers. The identification of the barriers that are at the root of some more barriers (called driving barriers) and those which are most influenced by the others (called driven barriers) would be helpful for the top management implementing the reverse logistics programs. This can be a guide for taking appropriate action to tackle barriers in reverse logistics' (Ravi and Shankar, 2005, p.2).

The view on the need to look at the relationship between various barriers that may influence other barriers has been supported by authors such as Sharma et al. (2011), Gupta (2013), Bouzon et al. (2016) and Gonzalez-Torre et al. (2010), who identified several barriers for RL for the automotive industry and categorised them under internal and external barrier headings. Sharma et al. (2011), through a literature review, identified 12 separate barriers to RL for Indian industries, and used Interpretive Structural Modelling (ISM) to analyse the shared effects among these barriers. This study found no autonomous barriers, but found that 'lack of awareness about reverse logistics', 'financial constraints' and 'legal issues' were the main barriers, among others (Sharma et al., 2011). Bernon et al. (2013) identified both internal and external barriers, and enablers for the customer product return category in RL in a retail context. Bernon et al. (2013) found some key barriers in supply chain integration in the product returns process, such as managers not willing to change and retailers not willing to share costing information and compatible IT systems. Abdulrahman, Gunasekaran and Subramanian (2014), for Chinese manufacturing sectors, identified various barriers and categorised them under four headings: management barriers, financial barriers, policy barriers, and infrastructural barriers. These authors found that barriers related to finance and management are the key barriers for the Chinese manufacturing sector. Prakash and Barua (2015) identified 38 barriers for the Indian electronics industry, and categorised them under seven headings, namely legal barriers, market-related barriers, management barriers, economic barriers, infrastructural barriers, technological

barriers, and organisational barriers, in descending order. Chileshe et al. (2015) identified 12 barriers to RL for Australian construction organisations, and found five of them as key barriers. Bouzon, Govindan and Rodriguez (2015) categorised 25 various barriers under seven headings, and found that policy-related barriers were the main barrier in the Brazilian context. Thiyagarajan and Ali (2016) identified 12 barriers to RL for the online retail industry, and categorised them under four headings. Garg, Luthra and Haleem (2016) identified 12 barriers for the Indian Fastener industry and found regulatory, finance, and management to be the key barriers.

The review on RL makes it clear that there are various barriers to RL, and these barriers hold significance according to the industry. Some authors came up with enablers and solutions to facilitate overcoming these barriers (Raj, Shankar and Suhaib, 2008; Prakash and Barua, 2015). Prakash and Barua (2015) came up with 20 various enablers that will help overcome the barriers, and 'top management awareness and support', 'balancing cost efficiency with customer responsiveness', 'simplified and standardised processes', 'detailed insight of cost and performance', 'cross-functional collaboration', and 'strategic collaboration with reverse chain partners' are some of the top ranked solutions.

It is important for managers to identify any potential barriers and look for ways to overcome them if they want to reap the benefits from RL, which will also help them to develop related capabilities, as '*the deployment of reverse logistics is not free from barriers*' (Ravi and Shankar, 2005, p.2). Solutions to the barriers must be carefully considered as, '*even the same barrier may need different treatment and priority for the same type of organisation due to the varied nature of resources, capabilities and strategies*' (Prakash and Barua, 2015, p.599).

2.11 Summary

The review on RL depicted that various issues related to RL have been topics of interest for previous researchers. The review for this study, however, has concentrated on the process of RL for all supply chain stages, such as goods accumulation and its processing including transportation, warehousing and sorting, selection, and inspection. The factors affecting the process have also been the highlight of this review, such as volume of goods, time required, and drivers and barriers in RL. The review has found that, apart from various issues, RL has been studied in terms of different supply chain stages, such as manufacturers, wholesalers/distributors, and retailers. Researchers including Fleischmann et al. (2000), Jayaraman, Guide and Srivastava

(1999) and Mutha and Pokharel (2009) carried out studies on the RL aspects from the perspective of manufacturers. The RL aspect in a retailer context has been studied by authors such as Bernon and Cullen (2007), Bernon, Rossi and Cullen (2011), Rogers et al. (2002), and Tibben-Lembke and Rogers (2002). Autry, Daugherty and Richey (2001) and Daugherty et al. (2005) conducted studies into catalogue retailers. Authors such as Daugherty, Autry and Ellinger (2001) and Mukhopadhyay and Setoputro (2004) investigated the RL aspects of online retailers. For a combined study of RL on manufacturers, wholesalers and retailers, see for example Rogers and Tibben-Lembke (2001) and Stock and Mulki (2009). The review shows that there may be both similarities and differences in aspects related to the RL situation of manufacturers, wholesale/distributor and retailers. The review showed that RL has also been studied on different product types, such as returnable containers (Kroon and Vrijens, 1995); electrical goods (Daugherty, Autry and Ellinger, 2001; Shih, 2001; Lau and Wang, 2009), computers (Shih, 2001; Ravi, Shankar and Tiwari, 2005) the plastic industry (Pohlen and Farris, 1992), automobiles (Daugherty et al., 2005), beverage containers (Goldsby and Closs, 2000), VCRs (Tibben-Lembke and Rogers, 2002), grocery and general merchandise (Bernon and Cullen, 2007), and publishing companies (Wu and Cheng, 2006; Bernon and Cullen, 2007). RL has also been the attention of studies on various nations, such as China (Lau and Wang, 2009), Germany (Walther and Spengler, 2005), India (Srivastava and Srivastava, 2006), South Africa (Stock, 1998), Taiwan (Shih, 2001), Europe (Krikke, Bloemhof-Ruwaard and Van Wassenhove, 2001; de Brito, Dekker and Flapper, 2005; Ravi, Shankar and Tiwari, 2005) and America (Ferguson and Browne, 2001; Meade and Sarkis, 2002).

The problems related to RL are growing rather decreasing. However, the literature review showed that RL has been the focus of businesses large enough to manage their supply chain (see for example Rogers and Tibben-Lembke, 2001; Mukhopadhyay and Setoputro, 2004; Daugherty et al., 2005; Bernon and Cullen, 2007; Mutha and Pokharel, 2009). As explained above, RL can affect all supply chain stages, businesses, products and countries. However, only a few researchers have looked into the RL aspects concerning smaller businesses, as '*there still exists a significant gap with respect to returns handling in the case of SMEs*' (Ruiz-Benítez and Cambra-Fierro, 2011, p.85). Small business, from the very beginning of their establishment, have been operating either as small retailers (Ramakrishnan, 2010; McGee and Rubach, 2011; Chung, 2012), small wholesalers (Dietsch and Petey, 2002; Saleh and Ndubisi, 2006) or as small

manufacturers (Finch and Cox, 1986; Briscoe, Fawcett and Todd, 2005; Thürer et al.,2013) who may deal with all sorts of businesses and products and may need to go through the process of RL.

Recently, researchers have begun to explore aspects of the RL process in the smaller business context. Benítez and Fierro (2011) made a case study on the RL aspect of the paint and wine sector in the Spanish SMEs context, focusing on the management of returns in this sector. Khan, Khan and Zhang (2012) focused on the development and implementation of ICT in the process of RL in the Pakistani SMEs context. Stewart and Ijomah (2012) focused in the setting up of RL infrastructure for SMEs in the automotive remanufacturing sector. Accordingly, Sundin and Dunbäck (2013) focused on the challenges faced by automobile remanufacturing. These existing studies highlight that research into RL in the small business context is rare. The existing studies, however, also indicate that the study of RL with respect to smaller businesses is in its emerging and developing stage. Nevertheless, more research is needed to understand the RL aspect concerning these businesses.

This research aims to explore the RL aspects concerning micro retailers, as retail RL is the more extreme case, as they deal directly with end customers who may want to return goods to them. Nevertheless, retailers are also the ones who may have to deal with the high quantity of unsold and excess goods (Brennon and Cullen, 2007). Furthermore, due to their infrastructure, they may have limited disposal options compared to manufacturers, and options like refurbishing, recycling and remanufacturing may not be available (Stock and Mulki, 2009). As explained in this chapter, due to the various issues and processes involved, RL can be an expensive and complicated process (Dekker et al., 2013). However, due to the dearth of literature on micro retail RL, not much can be said on how these types of businesses perceive RL. Hence, the next chapter reviews the literature on MBs, to see how the characteristics of MBs fits with the nature of RL.

Chapter 3: Review of Micro Business Literature

3.1 Introduction

The previous chapter described how studies of RL tend to focus on the businesses large enough to manage their supply chain, with limited focus on research into understanding RL in smaller businesses. Due to the growing research on RL in larger businesses, this research will be based on MBs, which is hoped to provide more nuanced and unique results in terms of understanding the developing field of rl. Hence, this chapter reviews the literature on MBs.

Traditional belief suggests that large organisations are the main players of the economy (Davies and Crane, 2010). However, the European Commission (2008) recognises the increasing importance of MBs, and suggests that these businesses are 'the real giants of the European economy' (p.7) with research demonstrating that micro enterprises in Europe account for 91.5% of all enterprises, compared to 7.3% categorised as small, 1.1% as medium, and 0.2% as large. Micro enterprise has already been making a significant contribution to the economy and has been responsible for the employment of approximately 6.9 million people (Devins et al., 2005). Williams and Cowling (2009) highlight the innovative characteristics of these types of businesses, and suggest that this sector accounts for some of the 'new' or 'significantly improved' products which are necessary for any economy. Hence, in 2009, the European Commission SME Observatory reported that micro-enterprise accounts for 87.1% of all enterprises in the UK, employing 21.4% of people. Consequently, there has been continuous growth of this type of business, both in number and in importance, resulting in the necessity of understanding its role in the various aspects of the economy.

The evidence from the relative literatures on RL revealed that this was a key research gap, as the existing research has largely been based on large enterprises. Only a few researchers have begun to look at the RL aspects concerning small and medium sized businesses; however, to the best of the researcher's knowledge, none of them have investigated this phenomenon concerning MBs. Hence, this chapter will explore the nuances of MB, demonstrating that RL is an important but neglected phenomenon for MBs. Consequently, apart from defining MBs, the literature review in this chapter will examine the previous academic literature, focusing on the key areas with the most relevance to this study. Areas such as organisational structure, management style,

constraints and strengths, environmental management, and supply chain relationships will therefore be the focus of this review.

3.2 Defining Micro Businesses

There has been a substantial effort by governments, researchers, academics, and concerned sectors to generate an exclusive definition of MBs (Storey, 2006; Dey, 2012; Smit and Watkins, 2012). However, there is a quandary in defining micro and small businesses (Dey, 2012), as there still is no internationally accepted definition of micro/small enterprises (Smit and Watkins, 2012; Henrekson and Sanandaji, 2014). Authors like Hwang and Lockwood (2006) and Nunes et al. (2012) argue that what has been defined as 'small' in some countries has been measured as 'micro' in other countries. Besides, the definition also differs between countries, various sectors, and different businesses (Atkins and Lowe, 1997; Nunes et al., 2012). For instance, in Pakistan, the definition of SMEs differs between the manufacturing and service sectors (Courcelle-Labrousse, 2005). Small enterprises in New Zealand can employ up to 50 employees, whereas in the USA the staff can reach 500 (Gilbert and Jones, 2000). Hence, the lack of a single definition that applies to all countries, business sectors and economies poses difficulties in understanding this area comprehensively (Tadesse, 2011).

Nevertheless, researchers have based their definitions either on qualitative or quantitative criteria. However, some researchers have combined both qualitative and quantitative criteria in an attempt to define this sector (Meredith, 1994; Senderovitz, 2009). After a review of 124 articles in this sector, Senderovitz (2009) found that 80% of researchers used quantitative definitions, which were based on the number of employees. Consequently, there may not be any best definition because the definitions are put forward by different authors using different viewpoints (Senderovitz, 2009). Those researchers aiming to make a comparative study of businesses based in various countries may have to go through the dilemma of defining these sectors differently according to the country under investigation. This study, however, aims to research UK MBs, so the definition of 'micro business' in this instance will be based on the definition put forward by the European Commission (2003). While this research was being undertaken, the UK voted to leave the European Union. However, it is still not decided how this exit, known as 'Brexit', is going to change the MB sector, if it is going to change at all. Hence, the definition for MB used in this

research will be based on the existing definition given by the European commission, as depicted in Table 3.1.

Company Category	Staff Headcount	Turnover	or	Balance Sheet Total
Medium-Sized	<250	≤ € 50 m		≤ € 43 m
Small	<50	≤ € 10 m		≤ € 10 m
Micro	<10	≤ € 2 m		≤ € 2 m

Table 3.1 Definition Criteria for Micro Businesses (European Commission, 2003)

As can be seen from the table above, the current study will focus on MBs with less than 10 employees, and whose turnover is ≤ € 2 m or the balance sheet of ≤ € 2 m.

Table 3.1 shows that medium, small and micro businesses are different because they have a different staff headcount or different turnover. Nevertheless, there can be both differences and similarities in the characteristics concerning these businesses (Russo and Tencati, 2009). MBs may have some unique characteristics, as they are the more extreme form of small businesses (European Commission, 2008; Kelliher and Reinl, 2009), however these businesses are also considered a type of small business (Qureshi, Kamal, and Wolcott, 2010). Because of this, past researchers who have studied MBs have also considered literature concerning small businesses for review, as the limited literature on MBs can be remedied by the inclusion of small business literature as well (Jones et al., 2014). Hence, when required, this review has also made use of small business literature to supplement the MB literature, providing it is relevant and helpful in conceptualising RL in the MB context.

3.3 Organisational Structure

According to Storey and Greene (2010), MB '*may embrace start up enterprises, self-employed managers with one or two employees, owner managed ... team managed ... family ... ethnic .... and businesses with differing legal status*' (p.32). MBs, however, are not just start-up businesses and there are number of these businesses that have been operating for many years. The role of the manager has been the focal point of MBs, as '*microenterprises are complex social organisations and managers have a pivotal role in their culture and any changes therein*' (Devins et al., 2005, p.541).

The centralised management style adopted by a few owner/managers makes the management style a personalised one (Matlay, 1999). As a result, these owner/managers who control the management solely possess the definitive authority of control and are responsible for every decision made within the business. For instance, the relationship with their employees, if any, tends to be influenced by the appearances, behaviours, and preferences of the owner/manager themselves (Matlay, 1999). Micro enterprise owner/managers view themselves as 'business people' rather than as qualified managers (O'Dwyer and Ryan, 2000) which may impact their interest in development of the business (Devins et al., 2005). Nevertheless, a MB may not have a management structure required to go through a formal procedure (Thomson and Gray, 1999). The owner/manager's liberty may be controlled by other obligations, such as financial institutions (Ibrahim, 2012), and therefore they may not be able to fully utilise their freedom. Besides, centralised decision making implies that the owner/manager of these types of businesses can either be the main barrier or the main promoter for any revolution in the organisation (Kruse et al.,1997; Wong and Aspinwall, 2004).

3.4 Management Style

As Devins et al. (2005, p.541) assert, '*managers in micro enterprises should be recognised as a group in their own right for a number of reasons*'. MBs can be run by both the entrepreneurs or the owner/managers, and entrepreneurs have a tendency towards risk-taking which affects their strategic attitudes. Entrepreneurs are opportunity seekers, and show less inclination to planning (Hisrich et al., 2005). Businesses run by entrepreneurs are less inclined to grow, and lack of strategy places the existence of such businesses in jeopardy (Berry, 1998). Furthermore, their decision making is influenced by 'irrational and erratic' characteristics (Gustafsson, 2009). Nevertheless, MB owner/managers may not have a concrete objective, and they may run the business just for the sake of living, without tangible planning. As a result, they may not be interested in either 'maximising profit' or 'growth' (Greenbank, 2001). Hence, strategic decision making is mainly influenced by personal motivation rather than the growth or development of the organisation (Hansen and Hamilton, 2011). However, these business people are also responsible for innovation, growth, and other developments within the organisation. Consequently, they become responsible for planning and taking charge of business activities, gauging the performance in the businesses (Brigham, de Castro and Shepherd, 2007). Owner/managers who run these types of businesses may be time constrained (Smith and Miner, 1983), hence

managers' multi-tasking can be the norm in businesses where the manager holds multiple roles and takes control of both operational and strategic functions (Matlay, 1999; Spence, 1999; Wong and Aspinwall, 2004). Consequently, in many cases they are found to disregard managerial issues, often focusing their attention on routine business processes which may hamper other issues (Fuller-Love, 2006). This situation has left them little time to reflect on issues related to strategy. In this regard, a short-term rather than a long-term management perspective prevails in these businesses (Wong and Aspinwall, 2004). Due to resource constraints, these businesses devote less energy to training and such other managerial development tasks than large companies (Curran et al., 1996). Nevertheless, small and micro enterprise managers learn naturally, '*by being able to experiment with ideas, by "doing" and networking with others and by working with more experienced mentors in their sector*' (Raffo et al., 2000, p.356). However, it is also noted that MBs are likely to use family support for managerial tasks, and only those seeking growth are likely to engage in non-family ties and networks (Baines and Wheelock, 1998). Tacit knowledge, which cannot be straightforwardly defined or transcribed and needs to be contextually grounded (Polanyi, 1966), is knowledge typically used by MBs (Wickham, 2001). These businesses '*direct contact with customers, suppliers and employees presents a distinct advantage in the informal strategic planning process*' (Kelliher and Reinl, 2009, p.523), which means that most MBs may have a simple and informal system in place based on their intuition and tacit knowledge.

3.5 Lack of Formality

SMEs can portray less formal behaviour than large businesses (Fernández and Camacho, 2016). Nonetheless, this situation in MBs can be severe, which again gives a hint that MBs are significantly different from large and SME business sectors. Literature provides various reasons for MBs acting informally. The flat management structure of MBs does not require them to go through a formal procedure (Thomson and Gray, 1999). MBs tend not to have formal education and training, and their decision making is based on intuition (Samujh, 2011). This also means that MBs' decision making is based on tacit knowledge gained from past experiences (Aboagye-Nimo et al., 2015), which can push them towards informal behaviour. Most of these businesses may understand that possessing good communication skills can result in better business performance (Bowen, Morara and Mureithi, 2009), however, in real terms these businesses lack these skills and use more informal ways of communication (Penn et al., 1998). Planning may be related to

long term success; however, MBs do not tend to focus very much on planning and instead work on more informal terms (Greenbank, 2000, 2001). MBs run on informal terms, but nonetheless, this behaviour can also lead them towards some favourable conditions. These businesses' '*direct contact with customers, suppliers and employees presents a distinct advantage in the informal strategic planning process*' (Kelliher and Reinl, 2009, p.523). Managers having close and informal contact with their employees helps them to be aware of every situation within their organisation, resulting in less uncertainty within the organisational structure (Storey and Cressy, 1996). Informal behaviour in MBs can vary in level for various types of entrepreneur, like women, older, educated, high income entrepreneurs and with older enterprises (Ligthelm, 2012). Informal behaviour can also vary by sector as informality can be seen more in the distribution, construction and manufacturing sectors (Gurtoo and Williams, 2009; Asian Development Bank, 2010; ILO, 2012).

It is a well-known phenomenon that compared to large businesses, MBs tend to show more informal behaviours. Moreover, some MBs can be a completely informal establishment. Informal sectors are involved in the production and sale of goods and services by businesses that are unregistered by or hidden from the state for tax purposes (Farrell, 2004). MBs can become involved in informal business for various reasons including inability of the formal businesses to generate enough jobs, and informal business as the way of survival for the underprivileged (Woodward et al., 2011). Authors like Naude (2009) and Woodward et al. (2011) concede that informal MBs can be found more often in developing countries. Nevertheless, authors like Williams (2007) concede that the 'necessity-push and opportunity-pull' (p. 317) contradiction has pushed MBs to become involved in the informal business sector, and this tendency is not only observed in developing countries, but also in other parts of the world.

3.6 Constraints and Strengths

MBs face various constraints, and some of the most significant constraints related to managerial style have been discussed in the above section. Apart from managerial constraints, there are other constraints faced by these businesses. Small and medium sized firms may face problems procuring 'capital' or 'credit', particularly in the early stage of their operation (European Commission, 2005), and the problem of accessing finance is much higher in the MB sector (European Commission, 2008).

MB owner/managers lack knowledge of various business-related issues (Fairman and Yapp, 2004) which may be due to the lack of expertise related to the use of information and communication technology (Jones et al., 2014). Furthermore, the lack of expertise in identifying sources of information (Callahan and Cassar, 1995) resulting from limited resources (Masten et al., 1995) can limit MB information acquisition and utilisation, which may hamper their progress (Jones et al., 2014). The majority of these businesses may understand that possessing good communication skills can relate positively to their business performance (Bowen, Morara and Mureithi, 2009), although in reality, these businesses lack these skills and they use more informal ways of communication instead (Penn et al., 1998). MBs tend to lack formal education and training, and their decision making is based on intuition (Samujh, 2011). They do not attend seminars or conferences to pursue their knowledge to the same extent as their larger counterparts (Parilla, 2013). Nevertheless, government programmes on training and education do not adequately address the needs of these businesses (Lean, 1998). These business owners also lack expertise in marketing (Hogarth-Scott, Watson and Wilson, 1996; Muske and Woods, 2004). Smaller firms, due to their small size and small operations, face the problem of economics of scale (Saleh and Ndubisi, 2006) which can be severe in the MB sector. Again, this can result in higher transaction costs (Mbogo, 2010). Besides, these types of business owner have lower or no knowledge of policy and legislation (Pratten and Lovatt, 2005) which may be a hurdle in keeping themselves updated with the legislation. These businesses also do not have enough control in economic uncertainty (Prasad, Tata and Guo, 2012). They have a small market share, and are comparatively small in the marketplace compared with their larger counterparts (Papadaki, Chami and Branch, 2002). Moreover, due to their small size and limited resources, small companies find it hard to compete with others (Pelham, 1999; Gunasekaran et al., 2011). Small businesses tend to have unstable relationships with their customers (Smith and Smith, 2006) and in adverse conditions, like large businesses, small businesses are less likely to quit the existing market and focus on new markets (Chen and Hambrick, 1995). These businesses are usually unable to lead the market, but instead they make adjustments to the changes, because they have no influence in the marketplace (Storey and Sykes, 1996). Planning may be related to long term success, however MBs do not tend to focus very much on planning and instead work on more informal terms (Greenbank, 2000, 2001).

Besides the aforementioned constraints, MBs also possess some strengths which make them unique. Where large businesses relish their 'resource advantage', smaller businesses relish their 'behavioural advantages' which is also likely to be the case for MBs (Storey and Greene, 2010, p.90). It has been found that family-related employees such as a spouse or children are the strength of these businesses, as they are likely to receive unconditional help and support from them (Baines and Wheelock, 1998). These businesses have an ability to work closely with their community and gain from engaging with support from community-based networks (Samujh, 2011). Further, due to the small share of market, MBs can have a more personal contact with their customers, which make them understand their customers' needs much more closely than large businesses (Brady and Voss, 1995; Greenbank, 2000). Likewise, managers have close and informal contact with their employees, which helps them to be aware of every situation within their organisation, resulting in less uncertainty within the organisational structure (Storey and Cressy, 1996). MBs are able to make use of the knowledge gained in tacit forms (Aboagye-Nimo et al., 2015). These businesses have the ability to build their competitive strength on the foundations of local and tacit information, which allows them to be flexible. This, again, enables them to adapt quickly to any changes in the market (Wickham, 2001) and also assists them to increase their innovative capability (Duarte Alonso et al., 2016).

Small businesses may not be able to compete with their larger counterparts, but they are able to cater to niche markets to capture the customers that may not have been captured by the larger companies, and this is advantageous in terms of their long-term survival (Hong and Jeong, 2006; Spence and Essoussi, 2010; Zach and Munkvold, 2012; Blomberg and Mansikka, 2013). Overall, MB owner/managers may not have the resources and capabilities of large businesses, even if they are the central authority of their organisation. However, MB owner/managers, with little planning, can assimilate and organise knowledge which can be used to cope with their ever-changing business situations (Kraus, Harms and Schwarz, 2006; Greenbank, 2000, 2001; Blackburn, Hart and Wainwright, 2013).

3.7 Environmental Management

Irrespective of their size, there is a continuous demand made by the market and consumers that businesses should display bigger concern for environmental issues (Campos, 2012). Small businesses may have a small individual impact on the environment, but their cumulative impact

is large (Petts, 2000; Williamson and Lynch-Wood, 2006). In Europe as a whole, small and medium sized enterprises are accountable for approximately 64% of the area's industrial pollution (DG Enterprise, 2010). Nevertheless, due to the significant number of MBs within this business sector, it is likely that the impact made by MBs will be significant. Additionally, authors such as Simpson, Taylor and Barker (2004) suggest that one of the ways small businesses can remain competent in the marketplace is through the adoption of a sustainable strategy, which again helps them to become a 'sustainable business'.

Both in the past and in recent years, researchers have focused primarily on environmental management for the SME sector as a whole. However, micro, small, and medium business sectors are not homogenous – rather, they are a heterogeneous sector of their own (Hillary, 2004; Parry, 2012). Hence, studies carried out on environmental aspects concerning SMEs may not be able to provide knowledge on how the smaller businesses like MB pursue their environmental goal, if they have an environmental goal at all. This means environmental management should be studied separately for micro, small, or medium enterprises (Hillary, 2004; Mir and Feitelson, 2007; Parry, 2012). Despite the growing importance of environmental management in MBs, only a few researchers have looked into this sector. For this reason, there has been a significant number of calls for research on the environmental management of the MB sector (Parry, 2012).

Researchers have found that, due to their unique characteristics, MBs may face problems in adopting environmental initiatives. For instance, authors like Hilary (2004) argue that it may not be lack of financial but could be lack of human capital that prevents MBs from pursuing environmental initiatives. Hilary acknowledges that staff and employees of these businesses may not be able to adopt environmental initiatives as they are already multitasking and are busy with other businesses activities. Owner/manager power is likely to become more dominating in MBs as either they do not have, or have very few, stakeholders to pressurise them (Atkins and Lowe, 1994). It is believed that larger firms proactively develop environmental strategies to develop their CSR strategies, to preserve and progress with their shareholders (Flammer, 2013). However, MBs are less likely to be motivated to pursue environmental initiatives for the sake of shareholders, as they may not even have any shareholders (Perrini, Russo and Tencati, 2007). Large businesses are also likely to be pressurised by their customers to go green or environmental friendly. However, this may not be the case for MBs, as even the customers of these businesses may perceive the environmental impact of such businesses as minimal, with no

need to be considered seriously (Hilary, 2004). Moreover, MBs tend to have poor environmental awareness and limited resources to pursue environmental initiatives which also results in a lack of confidence to adopt them (Vernon et al., 2003; Fairman and Yapp, 2004; Mir and Feitelson, 2007). There is a largely accepted consensus that environmental practices will bring sustainable advantages, however in reality, smaller businesses face misunderstandings and difficulties in achieving this (Simpson, Taylor and Barker, 2004). These challenges can often be more severe in the MB sector.

Due to the scale of its impact, policy makers have come up with environmental regulations, although it has never been easy for businesses to implement them (Hillary, 2004). Patton and Worthington (2003) found that internally driven change was less likely to be influenced in smaller firms. This means they may not take environmental initiatives for the sake of the environment but may get pressurised to get involved in it because they are bound by law to do so (Graafland, de Ven and Stoffele, 2003; Moore and Spence, 2006). Nevertheless, smaller businesses like MBs find it difficult to adhere to environmental laws. Perrini, Russo and Tencati (2007) found that failure to acknowledge the structural differences between large and small businesses is the main cause for lack of adherence with the regulations. Recognising this structural problem, organisations like the SBA (Small Business Act, 2008) have made a number of amendments and reforms in the way small businesses can implement environmental initiatives. The SBA has taken the initiatives and provided some key guidelines to encourage small businesses to take the loan for environmental ingenuities, providing cost free consultancy, networking support, regulatory incentives, and other financial assistance. These guidelines, however, are merely to encourage small business environmental initiatives, and are not enshrined in law.

Policy makers can only provide appropriate support to MBs for their environmental management if they have understanding of how MBs' environmental aspirations change over time:

> 'the drivers of green activities in micro-businesses are not static. Rather, as green practices are adopted, they can change the contextual dimensions of praxis. This, in turn, changes motivations, which then lead to further developments in praxis. The way micro-businesses engage in green activities can be understood as an incremental process of change that has distinct phases, each of which builds upon the last, has different drivers and requires different types of support' (Parry, 2012, p.231).

According to Cambra-Fierro et al. (2008), different business sectors have various environmental problems, and it is the sector that needs to decide the problem area and provide resolutions,

which may also be applicable in the MB sector. MBs may be less likely to react to external pressure, but may become motivated and influenced by their immediate and local communities for adopting environmental initiatives (Arndt and Sternberg, 2000). SMEs are more likely to get involved in environmental management if they are pressurised by their supply chain partners (Williamson and Lynch-Wood, 2006). This could also be the case for MBs, as they are also likely to be closely connected with their supply chain. Moreover, knowledge and training can be provided to MBs and their employees, which may encourage them to implement green initiatives (Vernon, et al., 2003, Zoogah, 2011; Ramus, 2002).

Overall, MBs may not be as compelled by law to adopt environmental initiatives as large businesses (Tilley, 2000). Hence, they need to show a more proactive approach by recognising the environmental problems concerning their businesses on their own, by initiating '*a more self-regulatory approach through hazard analysis*' (Fairman and Yapp, 2004, p.44). This type of approach may also help them to prepare in advance for environmental laws that may be upcoming (Louwers et al.,1999).

3.8 Supply Chain Management

Researchers may have looked into some issues related to MBs, however the literature review revealed that there has not been any explicit research on the MB supply chain. This could be one of the reasons why academics show little interest in studying the RL aspects concerning these businesses, as RL stems out from traditional supply chain management. Hence, to balance out the limited literature on issues related to MBs, this section will first look into SME supply chain literature which is believed will provide some insight in making the case for MB supply chain (Jones et al., 2014).

There are a number of studies that deal with the supply chain management issues concerning large businesses. However, research on this issue in terms of small business organisations remains limited (Quayle, 2003; Thakkar, Kanda and Deshmukh, 2012). In recent years, however, there is increasing interest in studying the supply chain issues faced by these businesses, and many researchers have highlighted the importance of supply chain management in smaller businesses (Bhattacharya, Coleman and Brace, 1995; Quayle, 2003; Arend and Wisner 2005; Vaaland and Heide, 2007; Thakkar, Kanda and Deshmukh, 2008; Khan, Khan and Zhang, 2010;

Tumaini and Zheng, 2011; Thakkar, Kanda and Deshmukh, 2012, 2013; van Hoof and Thiell, 2014; Stonkutė and Veinhardt, 2016; Kumar et al., 2017).

In today's economic and environmental uncertainties, small businesses face various challenges and threats related to their supply chain. These challenges and threats can be detrimental to the business if they are not sensibly and timely tackled. Small businesses deal with all sorts of services and products which can bring a wide range of challenges and threats (Daly, 2010). For instance, small businesses find it difficult to integrate the norm of corporate social responsibility (Jenkins, 2006; Spence, 2016; de Oliveira and Jabbour, 2017) and face challenges adopting green practices into their supply chain (Lee and Klassen 2008; Wooi and Zailani, 2010; Fritze 2013). Pressure to 'go global' is another issue that small businesses face (Julien, 1996; Brush, Edelman and Manolova, 2015). Likewise, not being able to perform on time, and according to the required standards are further risks experienced within the small business supply chain (Childerhouse et al., 2003; Love, Irani and Edwards, 2004; Svensson, 2004). Overall, small firms constantly face the need to innovate to survive, to grow and to remain sustainable (Wolff and Pett, 2006).

Due to their limited resources, small firms are not capable of doing everything themselves, and to solve this problem – or at least to remain competent in the marketplace – these businesses can choose the path of networking and collaborating with other parties (Rosenfeld, 1996; Rogers, 2004). All activities that are not at the core of the firm's value proposition can be shifted to the other channel members who possess superior capabilities (Fawcett and Magnan, 2002). Due to limited resources, small businesses can collaborate or network with other parties for efficiency, for example in the area of innovation (Cooke and Wills, 1999; Miller, Besser and Malshe, 2015). This will help them to produce new or improved products that are commercially successful (Faems, van Looy and Debackere, 2005).

Firms usually make a large investment in procurement; hence, effective supply chain management can be of great assistance for small businesses in terms of securing a good deal with their supply chain partners (Paik, 2011). Small businesses can collaborate for various purposes, such as R&D (Narula, 2004), innovation (Bougrain and Haudeville, 2002), economies of scale (Gnyawali and Park, 2009), entrepreneurial opportunities (Bengtsson and Johansson, 2014) or growth (Robson and Bennett, 2000), which can help bring a sense of competitiveness into these businesses (Rosenfeld, 1996; Brau, Fawcett and Morgan, 2007; Rabelo et al., 2016).

In the global context, supply chain management can be of great importance for small businesses where the industry is challenged by great competition and environmental uncertainty (Mentzer et al., 2001). Supply chain management in small businesses gives the owner/manager a chance to look outside the organisational constraints to see how the resources of suppliers and customers can be exploited to improve the performance of the business (Dell and Fredman, 1999). Also, due to their small size and small operations, small business faces the problem of economics of scale (Saleh and Ndubisi, 2006) which can be solved through collaborating with other parties (Tomlinson and Fai, 2013).

Despite recognition of the benefits of integrating the supply chain relationship, small businesses face a real problem in managing their supply chain. They also have a unique way of pursuing the relationship with their supply chain partners. Hong and Jeong (2006) came up with an analytical framework that shows the difference between the supply chain practices of large and small firms. The structural difference between small and large businesses may create differences in the way these firms pursue their supply chain relations. Both parties, such as suppliers and buyers, are involved in the supply chain. In some cases, the suppliers are dominant, and in other cases, it is the buyers who hold dominance over small businesses. Small businesses who are in the higher rank of the supply chain can demonstrate a superior relationship strength (Hong and Jeong, 2006). However, in other cases, due to their overreliance on the supply chain, they can be in a more vulnerable position (Arend and Wisner, 2005).

There is an increased consensus that small businesses need to look after their supply chain relationships. However, small businesses can face new challenges while incorporating their supply chain management practices. For instance, innovation can be attained through alliance with the supply chain partners; however, this alliance can bring challenges, such as the adoption of new technology or increased transaction costs (Arend and Wisner, 2005; Khan, Khan and Zhang, 2010; Ponis, van der Eijk and Masselos, 2012).

There are also the chances of various risks while pursuing a supply chain relationship. Faisal, Banwet and Shankar (2007) analysed the barriers to supply chain risk management. Rong and Ye (2011) studied supply chain risk management in the B2B context in the small business supply chain. Impaired supply chain practices can significantly and negatively affect firms' ability to provide quality service to their customers (Thakkar, Kanda and Deshmukh, 2011), however small businesses do not understand the influence their supply chain practices can make in solving these

problems (Arend and Wisner, 2005). Small business growth and survival will depend on their ability to use strategic focus in attaining improved negotiation terms through the enhancement of supply chain relationships (Hong and Jeong, 2006).

Less integrated  More integrated	**Relationship**	**Feature**
	Transactional/arm's length	Order-by-order, minimal interaction, price key order winner
	Ongoing	Medium term contracts
	Partnership	Long term contracts, sharing of information
	Strategic alliance/joint venture	Long timescales, extensive sharing of information
	Ownership	Backward or forward integration, full sharing of information

Table 3.2 Types of Firm-Supplier Relationships (Hill, 2000)

As shown in Table 3.2, Hill (2000) developed an analytical framework that shows the type and extent of the firm-supplier relationship, which may influence their relationship. Small businesses do not usually adopt vertical amalgamation which enables greater control of the supply chain (Arend and Wisner, 2005). However, larger firms may have the ability to create more transactional relationships, having more power on their suppliers, compelling their suppliers to meet their needs (Vaaland and Heide, 2007). The bigger and more powerful customers or suppliers in their supply chain can force small businesses to adopt the system most compatible to them (Zach and Munkvold, 2012). Besides, knowledge, financial resources, and technology are the main hindrances small business face while managing the supply chain (Tumaini and Zheng, 2011). Daly (2010) suggests that small businesses face both internal and external challenges while dealing with the supply chain. Challenges brought forward by their limited resources, their unique way of doing things and not going with the trend could be related to internal challenges. The inability to better communicate, collaborate, or the inability to negotiate could be the external challenges these businesses face. Overall, the absence of trust between small firms has been found as the key non-financial hurdle these businesses face while maintaining integration with suppliers in the supply chain.

In their study, Arend and Wisner (2005) found that struggles persist in the way supply chain management (SCM) shakes small businesses. This study found that, even if it brings bonuses for

these businesses, SCM can again expose and push small businesses to a complicated managerial style with threats that could lead to their uniqueness plummeting. Vaaland and Heide (2007) focused on the extent to which small businesses are prepared to meet SCM challenges using modern planning and control methods. The findings clearly indicate that small businesses give less attention to planning and control methods than large businesses. Small businesses are less satisfied with the methods applied, less concerned with methods supporting product quality, rationalisation of operations and capital cost rationalisation, less focused on system integration with other actors in the supply chain, and less focused on EDI and e-based solutions.

Collaboration does not always result in a win-win situation, unless it is done in an appropriate manner. Effective partner selection should involve an evaluation of the potential partner based on their competitive and technological position and access to business networks, but also on their track record of successful partnerships and the transferability of desired resources (Emden, Calantone and Droge, 2006). The collaboration success may depend on how well the firm can leverage their internal strengths with the competencies of their partner, which will again strengthen the competitive power of smaller businesses (Mohr and Spekman, 1994).

The review made of the small business supply chain shows that supply chain management may bring bonuses to small businesses, however it is equally likely that due to the complexity attached with supply chain management, these small businesses may find it hard integrating with their supply chain. MBs, who are at the extreme end of small business, may find managing the supply chain more challenging (Storey, 2016). Some authors have, however, made some suggestions on how MBs can tackle the management of their supply chain. For instance, Jagun (2008) suggests using electronic devices like mobile phones, which may be an easy and cost-effective way to address informational challenges in managing the supply chain. Likewise, Sodhi and Tang (2014) suggest working with social enterprises as supply chain partners, who can help these businesses achieve their business targets with minimal cost and hassle. These authors acknowledged that:

> '… social enterprise helps its associated micro-entrepreneurs by improving the latter's supply chain operations via: (1) easier access to financial credits; (2) easier access to market information; (3) easier market access; and (4) better access to supplies and raw materials and higher productivity through better health and equipment. We then speculate on how to make social enterprises economically sustainable and propose that social enterprises would be better off enabling micro-enterprises rather than running production operations themselves' (Sodhi and Tang, 2011, p.146).

Partnering with social enterprises as supply chain partners may help the resource constrained nature of MBs to achieve their business goals in a more economic and efficient manner. However, due to the competitive supply chain business environment (Vanpoucke, Vereecke and Wetzels, 2014), these businesses may not always get the chance to work with social enterprises, and may have to work with all different types of supply chain partners. Hence, it will be beneficial for these firms to identify and develop ways to maintain favourable relationships with a wide range of supply chain partners. Nevertheless, the right collaborative relationships among channel members of the supply chain can become effective in small businesses only if they can carefully exploit and exchange the competences their supply chain partner possesses (Brau, Fawcett and Morgan, 2007) – an approach that can also be implemented in the management of the MB supply chain.

3.9 Summary

Having established a focus on large businesses in the RL literature in the previous chapter, this chapter has explored how the characteristics of MBs might relate to the issues relevant to RL. The focus of this review has been to identify and analyse the firm size, organisational structure, management style, constraints and strengths, environment management, and supply chain management of micro-businesses. Research on RL has largely been focused on large organisations, however this thesis argues that small businesses must deal with all kinds of products from the very beginning of their operation. This means that these businesses have been operating as small manufacturers, small wholesalers/distributors and small retailers, who are likely to go through the process of RL. RL which is responsible for both economic and environmental loss, if not handled sensibly, can equally affect smaller businesses like MBs. Besides, this study argues that MBs who are resource constrained are more likely to face the challenges brought about by phenomena like RL, which is resource-intense. Any effects which are already significant within the large business sector can be equally, or much more, intense in the MB sector. It is equally important for MBs to look after their RL practices, as individually they may create a small economical or environmental impact, but may contribute towards a huge cumulative impact.

Nevertheless, the practices and processes generally related to large businesses may not be adaptable to smaller businesses. The differences in firms' characteristics, size, organisational structure, management style, constraints, fortes, and environmental/supply chain management

which have been reviewed in this chapter demand an alternative way of looking at these phenomena in the smaller business context.

Most importantly, the review of the small business supply chain shows that through having unique characteristics and being resource constrained in nature, MBs may also need to exploit the resources and competences of their supply chain partners to bring better performance to their businesses. However, MBs need to be very vigilant in planning, and learn the tactics of how best to benefit from their supply chain partners competences and resources. RL can affect all stages of the supply chain, including the firm, its supplier, and its buyers. Hence, RL is not just a problem for the firm, as it could be equally problematic to the firm's suppliers and buyers. It is likely that supply chain partners who have similar problems can come together to solve these problems. Nevertheless, MBs that are resource constrained, but at the same time can bring a large cumulative effect both economically and environmentally, are more in need of such alliances.

Having established a research gap between MB and RL, the next chapter explores the theories that have the potential to help explain a connection between MB and RL. The identification of the suitable theoretical approaches will also help to identify the research questions, which will finally help to outline the conceptual framework for MB RL

Chapter 4: Theoretical Approaches for Reverse Logistics

4.1 Introduction

This chapter analyses the existing literature on the theoretical aspects related to both RL and MBs. Finally, based on this analysis, research questions will be outlined and a conceptual framework will be developed.

The literature in the field of RL is limited in terms of theoretical perspectives. With most writings being 'descriptive' and 'anecdotal', there is a dearth of literature that is based on theory which, again, does not give a complete view of RL (Carter and Ellram, 1998; de Brito and Dekker, 2002). This view still exists in the field of theoretical aspects concerning RL, as traditionally, the academics and researchers who have contemplated strategies related to RL have used a very narrow approach, with no theoretical underpinning (Jayaraman and Luo, 2007; Rubio, Chamorro and Miranda, 2008; Nguyen, 2012). Hence, authors such as Nguyen (2012) acknowledge that the grounds of RL, especially in Europe, are developing recklessly, therefore there is a need to structure the theoretical perspective through the exploration of the significant factors that govern and affect RL. It is therefore important to understand and analyse the issues related to RL through an explicit theoretical lens, as this type of analysis will provide a better and clearer understanding of both the strategic and operational aspects of RL (Carter and Ellram, 1998).

In the article titled 'Developing a theory of reverse logistics', Dowlatshahi (2000) suggests that both 'strategic' and 'operational' factors are required to develop a theory, and RL has a combination of both components. The strategic factors in RL consist of 'strategic costs' and 'environmental concerns', and the operational factors consist of 'cost-benefit analyses', 'transportation' and 'warehousing'. Dowlatshahi (2000) suggests that theories in RL are not similarly adopted in all situations but are adopted differently by various authors depending on the level and situations. This means, as presented in Table 4.1, that a diversity of theories has been used to explain RL, including Resource Based View (Roy, Nollet and Beaulieu, 2006), Transaction Cost Economics (Janse, 2008), Analytic Hierarchy Process (Efendigil, Önüt, and Kongar, 2008) and Institutional Theory (Vlachos, 2016).

Theories used in Reverse Logistics	Author/Date	Studied Issues
AHP: Analytic Hierarchy Process	Efendigil, Önüt and Kongar (2008)	For selecting a third-party reverse logistics provider
	Senthil, Srirangacharyulu and Ramesh (2014)	For contractor evaluation and selection in third-party reverse logistics
	Jayant et al. (2014)	For selection of reverse logistics service provider
	Jain and Khan (2017)	To analyse the selection of reverse logistics service provider
AIS: Artificial Immune System	Kumar et al. (2017)	To resolve multi-period vehicle routing for forward-reverse logistics
ANP: Analytical Network Process	Meade and Sarkis (2002)	For selecting and evaluating third party reverse logistics service provider
	Ravi, Shankar and Tiwari (2005)	To analyse the disposal options in reverse logistics
BSC: Balanced Score Card	Ravi, Shankar and Tiwari (2005)	To analyse the disposal options in reverse logistics
	Agrawal, Singh and Murtaza (2016)	To develop a framework for outsourcing decisions in reverse logistics
CA: Carbon Footprint	Sun (2017)	To present the system boundary of reverse logistics carbon footprint
CT: Contingency Theory	Autry, Daugherty and Richey (2001)	To analyse the influence of industry, firm size/sales volume, and internal or external assignment of responsibility for disposal in RL
	Janse (2008)	To analyse the strategic aspects of reverse flows
FLT: Facility Location Theory	Cruz-Rivera and Ertel (2009)	For reverse logistics network design
GTA: Graph Theoretic Approach	Agrawal, Singh and Murtaza (2016)	To develop a framework for outsourcing decisions in reverse logistics
IT1: Inventory theory	Tibben-Lembke and Rogers (2002)	To explain the difference between forward and reverse logistics
IT2: Institutional Theory	Nguyen (2012)	To explain the adaptability and transferability of reverse logistics programme
	Ye et al. (2013)	To analyse the impact of institutional pressures on reverse logistics performance
	Vlachos (2016)	To analyse the of business strategy in RL capability for firm performance
MRP: Marginal Revenue Productivity	Kovačić, and Bogataj (2017)	For value evaluation of energy production and consumption in repeated RL
NLA: Network Level Approach	Pfohl, Bode and Nguyen (2012)	To explain the network and collaboration between the firms for RL
	Nguyen (2012)	To explain the adaptability and transferability of reverse logistics programme
PSO: Particle Swarm Optimization	Kumar et al. (2017)	To resolve multi-period vehicle routing for forward-reverse logistics

RAT: Resource-Advantage Theory	Richey, Genchev and Daugherty (2005)	To analyse the role of resource commitment and innovation in RL performance
RBV: Resource Based View Theory	Roy, Nollet and Beaulieu (2006)	To understand the issues related to RL networks and governance structure
	Jayaram and Luo (2007)	Analysing competitive advantages by value creation in reverse logistics
	Srivastava (2008)	Used the only theory of RBV in designing the network for reverse logistics
	Janse (2008)	To analyse the strategic aspects of reverse flows
	Lau and Wang (2009)	To understand the reverse logistics aspect of the developing countries like China
	Lu, Goh and De Souza (2011)	To understand the situation in RL as a strategic decision-making factor
	Pfohl, Bode and Nguyen (2012)	To explain the network and collaboration between the firms for RL
	Ramirez and Girdauskiene (2013)	To explain how the modes of knowledge conversion affect reverse logistics
	Morgan, Richey and Autry (2016)	To analyse the influence of collaboration and Information Technology in RL
	Vlachos (2016)	To explain the role of business strategy for RL capabilities and firm performance
RV: Relational View	Pfohl, Bode and Nguyen (2012)	To explain the network and collaboration between the firms for RL
SCT: Strategic Choice	Hsu and Zailani (2016)	To explain the sustainable supply chain initiatives through reverse logistics
ST: Stakeholders Theory	Álvarez-Gil et al. (2007)	To explain the external, internal, and individual factors that affect the RL programmes
TCE: Transaction cost Economies	Roy, Nollet and Beaulieu (2006)	To understand the issues related to RL networks and governance structure.
	Janse (2008)	To analyse the strategic aspects of reverse flows
	Lau and Wang (2009)	To understand the reverse logistics aspect of the developing countries like China
	Lu, Goh and De Souza (2011)	To understand the situation in RL as a strategic decision-making factor
	Pfohl, Bode and Nguyen (2012)	To explain the network and collaboration between the firms for RL
	Vlachos (2016)	To explain the role of business strategy for RL capabilities and firm performance
TOPSIS: The Technique for Order of Preference by Similarity to Ideal Solution	Senthil, Srirangacharyulu and Ramesh (2014)	For contractor evaluation and selection in third-party for reverse logistics
	Jayant et al. (2014)	For selection of reverse logistics service provider
TSD: Theory of Social Development	Nguyen (2012)	To explain the adaptability and transferability of reverse logistics programme

Table 4.1 Theories Used in the Study of Reverse Logistics

Authors such as Roy, Nollet and Beaulieu (2006) and Nguyen (2012) tend to use multiple theories, while others such as Srivastava (2008) rely on only one theory to explain the situation in RL. There are also similarities in the use of theories; for example, authors such as Janse (2008) and Roy, Nollet and Beaulieu (2006) both combine the theory of RBV and TCE. Nonetheless, the review of the theoretical approaches concerning RL indicate that, contrary to the past, authors now have started studying a range of issues related to RL, which is represented by the variety of theories. Theories used in existing studies have been developed to explain RL in large businesses. This research aims to develop the key theories so that they have explanatory power for MBs, too.

The review of the theoretical approaches concerning RL shows that there is no one way of choosing the theories for studying this phenomenon, and theories in the study of RL have been used according to the issues and situation of the study. As explained in Chapter 2, RL is a complex attribute, which means firms may need to have special capabilities to both understand and implement a RL programme. Also, being a costly attribute, firms may need to identify and develop ways to optimise the related costs. Nevertheless, MBs, as explained in Chapter 3, are the extreme case of small business, who are resource constrained in every way. This means they are likely to have higher transaction costs, due to the disadvantage of economics of scale. Consequently, these reviews make clear that the Resource Based View (RBV) (Barney, 1991) which explains the capability and resources of the firm, and Transaction Cost Economies (TCE) (Williamson, 1985) which explains the cost decisions of the firm, can be the two most distinct theories that will help to understand both the capabilities and the cost aspect of RL in the MB context. The detailed rationale and explanation for using these theories will be explained in the following sections. These theories have, again, assisted in laying down the research questions for this study, which will also be explained in the sections below.

4.2 Resource Based View (RBV)

The Resource Based View (RBV) of a firm describes its capacity to deliver sustainable competitive advantage when resources are managed in such a way that their results cannot be copied by competitors, which finally generates a competitive barricade (Mahoney and Pandian, 1992). Consequently, RBV explains that a firm's sustainable competitive advantage is grasped with the help of unique resources that are 'rare', 'valuable', 'inimitable', 'non-tradable', and 'non-

substitutable', as well as 'firm-specific' (Barney, 1991). Proponents of this theory emphasise that a firm may reach a sustainable competitive advantage through the distinctive resources which it embraces, and that these resources cannot be simply purchased, relocated, or imitated. Consequently, they enhance the value of a firm because they provide a distinctive effect in the firm, as they are rarer and more unique than that of their competitors (Wernerfelt,1984; Barney, 1991; Grant, 1991).

Resources are comprised of tangible physical assets, intangible information, and knowledge. Capabilities are the result of the effective use of both tangible and intangible resources, continuous and distinguished practices, and gathered experiences (Barney, 1991). These capabilities are said to be more difficult to imitate or substitute and therefore add greater value to the firm. This theory helps to explain a firm's initiations in building capabilities that become difficult for competitors to imitate or alleviate in a short period. This situation can again be explained as the firm's ability to attain long-term sustainable competitive advantage (Reed and DeFillippi, 1990; Collis, 1994).

As per the subsequent difference posited by Amit and Schoemaker (1993), 'resources' can be divided into resources and capabilities. In this regard, resources are tradable and are not specific to the firm; however, capabilities are specific to the firm. Some researchers suggest that this division has been broadly accepted throughout the resource-based view literature (Barney, Wright and Ketchen, 2001; Conner and Prahalad, 1996; Makadok, 2001). Although often considered theoretically different, capabilities can be regarded as resources (Amit and Schoemaker, 1993). Authors such as Mahoney and Pandian (1997) and Penrose (1959) suggest that if resources are stocks, then capabilities are flows. Similarly, it has been suggested that capabilities refer to a firm's capacity to organise and deploy resources, and to impact preferred aims and objectives (Hall, 1993; Chandler and Hanks, 1994). Development of specific capabilities may be good for the firms, although capabilities may not be built in a short period of time, but can be built over a longer timescale through repetition of the given set of actions and procedures (Rockart and Dutt, 2015).

4.2.1 RBV in Reverse Logistics

RL, for some of the larger firms, is a part of a long-term business strategy to attain sustainable competitive advantage, which adheres with the theory of RBV (Clendenin, 1997; Wells and Seitz,

2005). The reason behind this view is because RL capability brings economic, corporate citizenship, and environmental benefits, all of which help bring sustainable competitive advantage to the company (Ravi, Shankar and Tiwari, 2005). Gaining capability in RL brings profit (Minner and Kiesmuller, 2012; Dias, Junior and Martinez, 2016), which again has a direct impact on the bottom line (Stock, 1998). RL is also seen as a tool to cut costs (Richey, Genchev and Daugherty, 2005; Li and Luo, 2016). Firms can get both direct and indirect economic gains through RL (de Brito, Dekker and Flapper, 2004; Ravi, Shankar and Tiwari, 2005), as reversing the logistics opens up a new market, as alternative channel, for unwanted and discarded goods (Rogers, Rogers, and Lembke, 2010; Dowlatshahi, 2012; Dhakal, Smith and Newbery, 2016). There is economic benefit to bringing these products back for value-added disposal rather than landfilling them, as paying for the landfill cost is not considered economical (Thierry et al., 1995; Flapper, van Nunen and van Wassenhove, 2005).

RL is an alternative way of using resources which can be cost effective (Dowlatshahi, 2008). Resources required as raw materials can be acquired through the return of the discarded goods, as the parts and materials of used products still have economic value and can be reused (Minner and Kiesmuller, 2012). RL increases firms' competitiveness (Dekker et al., 2004; Stock and Mulki, 2009; Rajagopal, Kaliani Sundram and Naidu, 2015) and also helps in gaining strategic advantage (Sonya Hsu, Alexander and Zhu, 2009; Dowlatshahi, 2012; Hsu, Tan and Zailani, 2016) as firms can use RL to prevent others from entering the market by protecting their technology (de Brito and Dekker, 2004). For example, as concluded by Dijkhuizen (1997), one of the reasons IBM became involved in the recovery of their product parts was to avoid others stealing or copying their technology.

There is a well-established concept that environmental initiatives bring competitive advantage to companies, which can be looked at through the RBV approach (Aragón-Correa and Sharma, 2003; Schilke, 2014). Environmentally friendly programmes result in corporate environmental initiatives which, again, may provide a source of competitive advantage (Menon and Menon, 1997; Molina-Azorín et al., 2015). Even those businesses acknowledged as environmental leaders are finding that previous actions are no longer sufficient (Higgs et al., 2009), and there is a lot more to do in terms of environmental initiatives, including incorporating a good RL programme into their agenda (Srivastava and Srivastava, 2006; Demirel and Gökçen, 2008; Ramos, Gomes and Barbosa-Póvoa, 2014; Hsu, Tan and Zailani, 2016). Nevertheless, RL can

be seen as a tool to initiate environmental philosophies related to the various phenomena, like extended producer responsibility (Sachs 2006), take-back legislation (Atasu, van Wassenhove and Sarvary, 2009), closed loop supply chain (Dekker et al., 2004), product stewardship (Michaelis, 1995), cradle to cradle (Kumar and Putnam, 2008) circular economy (Andersen, 2007) and sustainable supply chain (Ashby, Leat and Hudson-Smith, 2012). The core concept of all these phenomena is like that of RL, which is to collect back and extract value from the products that are discarded both by the consumers and businesses to bring economic and environmental benefits (Dhakal, Smith and Newbery, 2016).

Firms' ability to keep their customers loyal can also be seen through RBV, which can again be achieved through RL (Jahanzeb, Fatima and Khan, 2011). RL not only allows cost savings in inventory, but can be used as a tool to improve customer loyalty (Kannan, 2009; Lee, Gen and Rhee, 2009; Hsu, Tan and Zailani, 2016). RL provides a green image to firms by increasing the demand of their product from the environmentally conscious customer (Demirel and Gökçen, 2008; Hsu, Tan and Zailani, 2016). Moreover, providing a liberal return policy will allow customers to return their products to the firm, which attracts more trade as consumers prefer retailers with good returns policies (Skinner, Bryant and Richey, 2008; Pei, Paswan and Yan, 2014). Apart from this, firms can use the data related to returned products in the improvement of product design, thereby by enhancing brand equity (Biderman, 2006). An enhanced knowledge of product returns can help identify any issues in certain areas such as manufacturing or marketing, which again can help in remedying any problems (Stock and Mulki, 2009).

Following the concept of RBV, it can be seen that RL may be regarded as the unique capability or ability of the firm that will help them to achieve competitive advantage (Clendenin, 1997; Daugherty, Autry and Ellinger, 2001; Richey et al., 2004; Wells and Seitz, 2005; Lau and Wang, 2009).

Lau and Wang (2009) found that the current firm-based theories on RL, such as RBV, successfully explain the practices of companies in developing countries, as has been the case in developed countries. Leading authors like Solér, Bergström and Shanahan (2010) and Huo et al. (2016) suggest that RBV is a suitable lens through which to view the competitive advantage brought about by the management of supply chain.

4.2.2 RBV in Micro Businesses

Due to the dearth of literature on the MB RBV perspective, this discussion will begin with the RBV discussion for small businesses and consequently make the case for MB.

The RBV of the firm, which is a well-established theory in the firm level of large business, has also become an important theoretical aspect in explaining the situation of smaller businesses. Smaller firms also face the necessity to procure critical resources that will create a sustainable competitive advantage among competitors (Barney, Wright and Ketchen, 2001). RBV acknowledges that smaller firms are weaker than larger firms because they lack the necessary resources and capabilities for survival and growth (d'Amboise and Muldowney, 1988; Eden, Levitas and Martinez, 1997; Gooderham et al., 2004). For example, a stimulating RBV perspective on how a small and medium sized enterprise can develop a sustainable competitive advantage based on detailed analysis of 14 case studies was put forward by Rangone (1999). This study identifies the importance of three basic capabilities: 'innovative capability', 'production capability', and 'market management capability' in small business that can match with the resource based perspective of the firm. Literature identifies several other resources that small businesses possess that would give them the competitive edge which is associated with the RBV, for example: external relationship (Street and Cameron, 2007); small business orientation or entrepreneurial orientation (Runyan, Droge and Swinney, 2008); knowledge-based resources (Wiklund and Shepherd, 2003); human resources (Mayson and Barrett, 2006); export performance resources (Dhanaraj and Beamish, 2003); working capital management resources (Howorth and Westhead 2003); innovative resources (Hewitt-Dundas, 2006); and internationalisation related resources (Westhead, Wright and Ucbasaran, 2001). These studies not only identify or confirm that a particular resource can be tapped into the management of small firms, but also show how these resources can be developed, leveraged, and further combined for enhancing business performance.

Subsequently, authors have used the theory of RBV to identify and explain various resources that can help bring competitive advantage to smaller firms. As explained in Section 4.2.1 of this chapter, RBV also explains the strategic rationale behind the adoption of RL for obtaining a competitive edge. Nonetheless, literature reveals that RBV can acknowledge the resource-intense nature of small businesses. Hence, it can be argued that smaller business, if integrating RL into their agenda, may achieve similar advantages.

It has not been easy to make a similar case for much smaller businesses such as MBs. Very limited existing theoretical and empirical research on MB resource-based approaches has created a problem to build upon the existing literature. Kelliher and Reinl (2009) attempt to discuss the resource taxonomy of micro firms using the RBV approach. These authors highlight the learning attributes of these types of firms as resources, and analyse these through the RBV approach. The authors suggest that:

> 'The micro-firm's underlying unique competitive advantage is centred on their capacity to learn at a faster rate than the rate of change in their environment, this taxonomy seeks to hone management practice in promoting and capturing individual and organisational learning in this environment. Specifically, micro-firm management competencies are found to be relationship management when interacting with the firm's business environment, opportunity (resource) management at organisational level, the owner/manager's inclusive micro-firm management practice leadership and communication skills within the firm, and the promotion of individual learning underlying HRD' (Kelliher and Reinl, 2009, pp.529-530).

Researchers like Hermel and Khayat (2011), with context to rapid internalisation in micro firms, emphasise the significance of leveraging internal and external resources. These authors suggest that quick internalisation is made possible through 'managerial abilities', 'innovation' and 'network' capabilities. Tu, Hwang and Wong (2014) examine the co-operation between supplier and consumer in product and service innovation in micro firms. Their study found that cooperation with supplier is more helpful in this respect than cooperation with consumers. Duarte Alonso et al. (2016), in the context of micro and small Italian wine firms, found that resources like product quality, managerial/staff capabilities, and knowledge were some of the more significant resources these businesses possessed, which again has alignment with the theory of RBV. This study, however, also found that sustainable competitive advantage, despite the existing resources, may not be achieved as these firms face various barriers like finances and red tape. Various authors recognise the limited amount of research in this area and have made a call for further study to develop better understanding (Kelliher and Reinl, 2009; Grande, Madsen and Borch, 2011). For instance, with context to understanding the relationship between entrepreneurial orientation and RBV, questions have arisen like 'are these theories also valid for micro-sized firms…?' (Grande, et al., 2011, p.91). Thereafter, some research on the relationship between micro firms and resource-based view theory has been conducted in recent years (see, e.g. Kearney, Harrington and Kelliher, 2014; Bhattacharyya and Jha, 2015; Wang, 2016). It can, however, be argued that these existing studies are lacking in terms of both quantity and quality, which does not provide a

concrete base for understanding the resources, capabilities, and competitive advantages in relation to micro firms.

Furthermore, phenomena such as RL may be beneficial to smaller firms like MBs; however, special capabilities are required to undergo this process:

> 'Reverse logistics capabilities represent the internal capabilities and processes that the firm deploys to effectively implement its reverse logistics activities… Reverse logistics capabilities include the accuracy and the availability of information that is used, and the process and timeliness of reverse logistics information. Reverse logistics capabilities also include the internal and external connectivity and usefulness of that information. These capabilities represent a bundle of information-related processes that enable a firm to better manage its reverse logistics activities that may in turn relate to cost savings' (Jack, Powers and Skinner, 2010, pp.229-230).

Due to the paucity of literature on MB RL, and the limited literature on MB resource-based perspectives, it has not been easy to suggest whether MB possess the required resources and capabilities to go through the process of RL in order to achieve sustainable competitive advantage. Consequently, this analysis leads to the first research question:

> **RQ1:** Do micro businesses have the capabilities to go through the process of reverse logistics for sustainable competitive advantage?

RBV may have the potential explanatory power around the resources and capabilities needed for RL, however this theory has not been free from criticism. For instance, it has been argued that competitive advantage may not be sustainable in dynamic, quick changing market environments (Eisenhardt and Martin, 2000; Fiol, 2001). Hence, the key to converting these dynamic capabilities into a source of competitive advantage is by applying these capabilities 'sooner, more astutely, or more fortuitously' (Eisenhardt and Martin, 2000, p.1117). Large firms with adequate resources may be able to tap into the benefits of their existing capabilities for sustainable competitive advantage in the changing market environment. However, smaller firms including MBs, due to their resource constrained nature, may struggle to do this. Nonetheless, the flexible nature of these businesses which results in quick adaptation to any changes in market may be able to change the existing capabilities for sustainable competitive advantage. However, empirical research is needed to examine this assumption. Furthermore, RBV has also been criticised as being unable to adequately conceptualise other organisational dynamics, especially costs (Foss and Foss, 2004). For this reason, this existing research has also used the theory of Transaction

Cost Economics (TCE), which is believed to have the potential to examine the cost situation of a firm to make a rational economic decision.

4.3 Transaction Cost Economics (TCE)

TCE has been considered as a distinct theory which helps to explain a firm's behaviour based on rational cost-benefit decisions. Whilst RBV explains the rationale and strategy behind the adoption of RL, TCE explains the operational aspects of RL (Williamson, 1985). TCE postulates the situations under which a firm should manage an economic exchange internally within its boundary, or externally through inter-organisational arrangements (Maltz, 1993; Skjøtt-Larsen, 2000). Accordingly, this theory focuses on minimising the total transaction costs of producing and distributing a particular product or service by making the comparison between performing it internally within the organisational resources, or using outside resources, enabling the firm to choose the most optimal option.

Transaction costs can be divided into three broad categories: search and information costs, such as those incurred in determining that goods are required and available in the market for the lowest possible price; bargaining costs, such as the costs required to come to a satisfactory agreement with the other party in the transaction; and policing and enforcement costs, which are the costs of making an assurance that the other party sticks to the terms of the contract (Dahlman, 1979).

This theory focuses on minimising the total transaction costs of producing and distributing a product or service which is determined by limited rationality, opportunistic behaviour, frequency, uncertainty, and asset specificity involved in the transactions (Williamson, 1975, 1981, 1985, 1996). The first two elements are assumptions that underpin a firm's choice between insourcing and outsourcing. Those who are involved in the transaction may have limited rational thinking and decision-making abilities which may be a factor preventing them from entering into long-term contracts with their providers and developing any strategic relationship (Williamson, 1985). This phenomenon is described by the factor of limited rationality attached to the cost of transaction. Further, those who are involved could be opportunistic in their behaviour, i.e. they might choose to cheat, distort information, shirk responsibility, or get involved in other forms of deceitful behaviour (Williamson, 1985). This phenomenon is attached with opportunistic behaviour from the parties involved in the transaction. In this instance, unless the dealers' satisfaction on cost

reduction and quality assurance is maintained, reliable partnerships may not be formed (Kedia and Lahiri, 2007).

The last three elements relate to frequency, uncertainty and asset specificity, which are factors or variables that characterise any transaction and affect the transaction cost. This means low frequency high cost and high frequency low cost, low uncertainty low cost and high uncertainty high cost, low specificity low cost and high specificity high cost (Lau and Wang, 2009). Williamson (1985) recognises three types of asset specificity, which include site specificity (e.g. a setting or a location), physical asset specificity (e.g. machineries, equipment, and tools), and human asset specificity (e.g. knowledge, capability, and organisational skills). The dimensions of asset specificity (the level of investment supporting a transaction), frequency (e.g. one time, infrequent, and recurring) and uncertainty (e.g. the availability of the product or the service exchanged in the transaction) guard the selection of the form of governance and its effect on the costs of transaction.

The notch of support between firms based on the TCE can be constituted with three main forms of governance, such as hierarchy form (e.g. vertical integration, profit centre organisation), hybrid form (e.g. long-term contracts, franchising, consortia licensing, strategic alliance, and joint venture), and market form (e.g. supply contracts, service contracts) (Pfohl, Bode and Nguyen, 2012).

TCE has become one of the most widely used theories within academia for understanding various business propositions (David and Han, 2004). This theory, however, is not free from criticism; hence, researchers may need to be aware of the weaknesses and shortcomings of this theory before using it to study their topic of interest. For instance, Chiles and McMackin (1996) suggest that, as per TCE bounded rationality, opportunism and risk neutrality should not just be the basis for firms to choose the governance structure, but 'trust' should also be taken as one of the perceptions with the potential to unify the governance structure. Bridge and Tisdell (2006) suggest that vertical integration should not be considered as the last mode of the firm, but this can be the first choice. David and Han (2004), after review of 308 statistical tests from 63 articles, found that there was significant discrepancy in the use of some of TCE's vital concepts and proposals, where little empirical support was found in the areas of uncertainty and performance. Likewise, TCE can also be criticised because the "*unit of analysis is not appropriately chosen and the governance structure is not well specified. Overall there is also a misinterpretation of the way the asset is*

specified" (Chang, 2013). There may also be weakness related to organisations and the way they address transactions. For instance, Ghoshal and Moran (1996) suggest that '*organizations are not mere substitutes for structuring efficient transactions when markets fail; they possess unique advantages for governing certain kinds of economic activities through a logic that is very different from that of a market*' (p.185), which has not been taken into consideration by the TCE theory. Review of the critiques for TCE, for example, have made by Foss and Klein (2010), Lacity, Willcocks and Khan (2011) and Sedatole, Vrettos and Widener (2011). Although the majority of studies support TCE theory, some of these studies propose extending the theory using other balancing aspects, which means '*operationalization of transaction costs remains a field requiring further research*' (Müller and Aust, 2011, p.1287).

4.3.1 TCE and Reverse Logistics

Business may use many different alliances, partnerships and collaboration options, such as the use of third party logistics (Krumwiede and Sheu, 2002), the use of fourth party logistics (Mukhopadhyay and Setaputra, 2006), supply chain relationships (Stank, Keller and Daugherty, 2001; Daugherty, Myers and Richey, 2002), symbiotic relationships (Turner, LeMay and Mitchell, 1994), eco-non-profit organisations partnership (Kumar and Malegeant, 2006), and local recyclers (Ravi, Shankar and Tiwari, 2005) for executing RL-related tasks in whole or part, which may relate with the TCE approach. Having one's own infrastructure is the decision related to 'make' and using other alliance, partnership and collaboration options may relate to the decision related to 'buy'. In other cases, businesses give no attention or importance to RL because they do not consider RL to be mainstream business activities (Lau and Wang, 2009).

Despite its shortcomings, TCE, as presented in Table 4.1, has remained one of the most commonly used theories in explaining the situation of RL (Lau and Wang, 2009). While using the TCE for managing the reversed product, Toffel (2004) suggests that transactions with low asset specificity are frequently conducted in the market form, transactions with intermediate asset specificity in the hybrid form of governance, and transactions with high asset specificity in hierarchical form of governance. The specificity of recovered components (such as the recovered value used for new products) and the asset specificity of human resources and physical assets in the RL process (such as investments in skilled labour, specialised equipment, and technology) are some of the important criteria in selecting inter-organisational collaboration in RL operations. In addition, TCE argues that in the situation of low strategic importance of the transaction and low

asset specificity, cooperation is still considered advantageous, even if environmental complexity and uncertainty exists. In this situation, partners benefit from the possibility of close coordination while saving monitoring costs, because the task's low strategic importance does not require an extensive control mechanism (Williamson, 1981). Moreover, there is a greater likelihood of joint investment in RL between firms for lower value recyclables and activities classified as waste management (Kocabasoglu, Prahinski and Klassen, 2007).

Businesses need to come up with practices that would not only help them to manage, extract value or dispose of their accumulated goods, but which would also allow them to execute these tasks in the most cost-effective way. Being a resource intensive task, it is likely that the cost of RL would increase significantly if costs are not considered carefully (Rogers and Tibben-Lembke, 2001; Jack, Powers and Skinner, 2010). Consequently, as mentioned in the theory of TCE, it is imperative to understand what cost decision the company will make to undergo the tasks related to RL, to bear minimal cost. However, the application of TCE theory in determining RL cost may not be straightforward, as identifying and understanding the types and facets of costs related to RL is a complicated act. The complication attached to understanding the facets of RL costs in a holistic manner has, however, been overlooked by earlier researchers, which will be explained in the section below.

4.3.2 Reverse Logistics Transaction Costs

Review of the literature shows that the cost of RL can be explained through three facets: cost avoidance/reduction; visible/known costs; and hidden costs.

4.3.2.1 Cost Avoidance/Reduction

Operating RL is costly, and firms can often be cautious about RL and play a more defensive role or use preventive measures to avoid or reduce the costs. Firms may want to avoid unnecessary costs, but it may not be easy to avoid them completely. Firms, however, can work on reducing the costs (Lau and Wang, 2009). Tightening the return policy, gatekeeping, and avoiding returns to avoid or lessen the volume of customer returned goods may eventually result in avoidance and reduction of related costs (Rogers et al., 2002; Richey, Genchey and Daugherty, 2005; Rogers, Melamed and Lembke, 2012). Measures that can be implemented to avoid or reduce goods accumulation include the following: analysing the product lifecycle (Tibben-Lembke, 2002; Agrawal and Choudhary, 2014); training staff (Bernon, Rossi and Cullen, 2011); advising

customers about the use of the product; repairing or repair facility; aftersales service; integrating marketing and logistics; proper forecasting; proper inventory management; integration of the activities related to collaboration, integration and evaluation; managerial decision making and know how; enhancing and improving product quality; and better accounting systems (Bernon and Cullen, 2007). In addition, 'management accounting practice' can be used for reducing the costs in RL (Cullen et al., 2013, p.2012). Tibben-Lembke and Rogers (2002) suggest that RL handling costs are significantly higher for businesses and small volume means increased costs. Hence, firms can use the strategies that will allow them to have economics of scale advantages as smaller volume may mean more costs (Tibben-Lembke and Rogers, 2002, p.275). Various costs related to the strategic factors can be used to reduce the costs of RL, such as equipment costs, skilled labour costs, storage costs and transportation costs (Du and Evans, 2008). Researchers like Mutha and Pokharel (2009) suggest reducing the cost of RL by deciding on the appropriate 'locations' and 'capacities'. Blumberg (1999) suggests outsourcing services related to RL in order to reduce costs. Hu, Sheu and Huang (2002) propose a model which helps in minimising the costs of RL in the treatment of hazardous waste. Bokade and Raut (2013) developed guidelines for designing a cost effective and flexible RL programme which would reduce transportation costs by creating a return facility for customers. They also suggested a liberalised product return policy which will enhance customer return policies on product return, which in turn increases customer satisfaction, providing cost advantage over remanufacturing. They also suggest forecasting the returns, changing the product design, and the use of IT for product coding, which overall will make the RL programme more flexible for cost effectiveness. Goldsby and Closs (2000) and Kovács and Ríkharðsson (2006) used activity based costing to improve effectiveness and reduce RL costs. Again, a discrete-time linear analytical model for minimising the total operational costs for multi-type step and multi-type hazardous waste in RL has been proposed by Hu, Sheu and Huang (2002). Nonetheless:

> '[a]ccumulated knowledge and experience through repeated transactions, together with continuous investment in reverse logistics equipment and expertise, will not only increase efficiency and reduce unit operating cost in the long run but also develop capabilities' (Lau and Wang, 2009, p.456).

However, initiatives for cost reduction may not always prove to be a win/win situation, and there may be some disadvantages attached to it. For instance:

'… high-level decisions for reverse logistics are influenced by a multitude of factors that interact with each other resulting in trade-offs between cost savings and other factors such as direct customer relationships and proprietary knowledge' (Barker and Zabinsky, 2011, p.559).

Hence, the trade-offs of reducing costs, if any, can be an important aspect to consider before using ways to reduce the costs in RL.

4.3.2.2 Visible/Known Costs

The costs associated with RL may not always be preventable, as reversing the logistics means going through various processes, which again may be costly. RL will start with the accumulation of excess, unsold, obsolete or damaged goods in the reverse channel (Rajagopal, Kaliani Sundram and Naidu, 2015). Goods are returned by customers and must be accepted due to the liberal return policy (Simões et al., 2017). Goods may also need to be taken back because of legislative, economic, environmental (Fleischmann et al., 1997; Jain and Khan, 2017), corporate social responsibility (de Brito, Dekker and Flapper, 2004) and sustainability reasons (Sarkis, Helms and Hervani, 2010). Consequently, various costs associated with these processes must be incurred. The process in RL has been clearly interpreted in the literature; however, the actual costs of RL are not yet clear.

Some authors, however, have attempted to identify the costs associated with RL, as illustrated in Table 4.2. Excess, unsold, obsolete and damaged goods that have been returned by customers or collected from the customers as an end of life product may need transporting from one place

Authors/Date	Reverse Logistics Costs
Rogers and Tibben-Lembke (1998)	Transportation, landfills, inspection, cleaning, repair, storage, and sorting costs
Hu, Sheu and Huang (2002)	Collection costs, storage costs, total treatment costs, and total transportation costs
Kovács and Ríkharðsson (2006)	Collection, inspection and sorting, reprocessing, disposal, redistribution costs
Jiang-guo, Zhong and Jun-hua (2007)	Cost of retrieval, cost of inventory, cost of disposal, and, cost of waste disposal.
Shi and Li (2011)	Fixed costs, collection costs, processing costs, disposal costs, transportation costs, shortage costs, and storage costs
Khodaverdi and Hashem (2015)	Inspection cost, inventory cost, transportation cost, packaging cost, etc.

Table 4.2 Visible/Known Costs of Reverse Logistics

to another (Giuntini and Andel, 1995). Consequently, the cost involved in collection and transportation is a major expense of RL (Srivastava, 2008; Bernon, Rossi and Cullen, 2011). Goods must be stored/warehoused until a decision can be reached as to what to do with the products (de Koster, de Brito and van de Vendel, 2002), therefore incurring the cost associated with storage (Dowlatshahi, 2010). Depending on the type and quality of these products, proper sortation, selection and inspection may be required, which is again an added cost (de Brito, Dekker and Flapper, 2004). Consequently, the most optimal disposal option is chosen from those available at further cost (Thierry et al., 1995; Tibben-Lembke and Rogers, 2002). Businesses may get away with the cost if the accumulated goods can be sold 'as is', without any further processing. They may also get extra rebate if they donate these products to charity (Tibben-Lembke and Rogers, 2002). However, they cannot escape the cost if they need to repackage, sell via outlet, or sell to brokers (Rogers and Tibben-Lembke, 2001). There will be extra costs if the products have to be repaired, refurbished, remanufactured, cannibalised, recycled, incinerated, or even landfilled (Thierry et al., 1995). In addition, there is the requirement of skilled staff and labour (Fleischmann, 2003), adequate time and expenses (Ko and Evans, 2007), leading to extensive resource allocation (Daugherty et al., 2005). All these costs may depend upon the types of products involved (Fleischmann et al., 1997; de Brito, 2003; Zhiquiang, 2003), the complexities of the 'players' and 'actors' involved (Efendigil, Önüt and Kongar, 2008), the varied return reasons or collection reasons (Rogers and Tibben-Lembke, 2001; de Brito, Dekker and Flapper, 2004) and to some extent also depend upon the complexities in the process and systems of RL (Srivastava, 2008; Bernon, Rossi and Cullen, 2011). The costs of RL may not remain similar in all situations, either. For instance, Temur, Kaya and Kahraman (2014) suggest that costs can differ in various situations, such as the availability of labour and labour skill level.

There are not just the actual costs, but also hidden costs in RL which academics or practitioners may not be aware of. Harris and Martin (2014), for example, in the analysis of third-party RL service providers suggest that '*determining the actual cost of reverse logistics is an area that warrants future research*' and suggest that '*to accomplish this type of feasibility study, the hidden and actual costs of reverse logistics should be studied further*' (Harris and Martin, 2014 p.11).

4.3.2.3 Hidden Costs in Reverse Logistics

Supply chain management is a complicated topic, and researchers are still trying to figure out the actual costs involved. Harrington (1996, cited in Gunasekaran, Patel and Tirtiroglu, 2001) notes that '*inventory is where the biggest cost is hidden in most businesses today*' (p.81). Firms will work on either reducing/avoiding or paying the costs, if these costs are known to them. However, authors believe that there are various hidden costs of RL which the businesses may not be aware of, as the cost of RL is often unclear and that they are not 'visible' (Tibben-Lembke and Rogers, 2002; Ravi and Shankar, 2006; Bernon, Rossi and Cullen, 2011). Norman and Sumner (2006) outline several cost types in RL that remain hidden, and they are: (1) hidden labour costs, (2) grey market items, (3) lack of visibility, (4) inability to forecast accurately, (5) credit reconciliation, (6) poor response time and brand toxicity.

Firms, however, are very focused on their forward logistics and RL subsequently gets inadequate attention from management. This tendency is '*one reason for the lack of knowledge regarding reverse logistics activities and their subsequent costs*' (Goldsby and Closs, 2000, p.504).

Due to the various facets of RL costs, understanding the costs may be complicated. Hence, it may be practical to analyse the use of TCE in understanding these various cost situations of RL- as TCE now only focuses on the visible/known costs and does not recognise the cost avoidance or hidden cost situations. Nevertheless, this may only be possible if the various costs facets, as explained in the above sections, are identified and understood. Understanding the cost facets of RL by bringing all three cost facets together, however, has been identified by this study as an under-researched area.

4.3.3 TCE and Micro Businesses

As MBs are the focus of this study, it becomes necessary to understand the use of TCE theory in this area. However, due to the dearth of literature on the use of TCE in MBs, this review will first look into the relationship between TCE and small and medium sized businesses, consequently making the case for the use of TCE in micro firms. The existing literature depicts that there is a deep relationship between TCE theory and small businesses, as various researchers in the past have used the theory of TCE in consideration of various different issues in smaller businesses, such as learning needs (Gibb, 1997), international expansion (Zacharakis, 1997), human resource management (de Kok and Uhlaner, 2001), information technology (Ngai and Cheng,

2002), offshore outsourcing (Carmel and Nicholson, 2005), knowledge management (Uhlaner and van Santen, 2007), innovation (Kim and Park, 2010), research and development (Mukherjee et al., 2012), offshore outsourcing (Mohiuddin and Su, 2013), borrowing (Tumwine et al., 2015) and knowledge management (Martinsons, Davison and Huang, 2017).

The above analyses have made clear that it is quite common for academics and researchers to make the use of TCE theory in analysing the situation in small businesses, and that TCE is the theory that can explain the different cost situations of smaller businesses. In some cases, however, a contradicting view prevails among the researchers regarding the use of TCE theory in the smaller business context. For example, in an attempt to understand the knowledge sharing aspect in small business, Ke and Wei (2007) found that TCE in terms of small business does not determine the reason for firms sharing knowledge. The study found that the conditions conducive to inter-organisational cooperation offered by socio-political theory are more powerful in explaining what leads firms to share knowledge with each other. Likewise, Everaert, Sarens and Rommel (2010) found that accounting outsourcing in small businesses is not just because of the TCE perspective, but because of the influence of the educational background of the owner/manager as well. Furthermore, their study found that the educational background of the CEO (Chief Executive Officer), as well as the CEO's level of trust in the external accountant, were very much linked with outsourcing rather than just the conditions explained by TCE.

Nooteboom (1993) suggests that TCE is the perfect theory to understand and analyse the resource intense situation in a small business context. This study found that small businesses, in many cases, are not in the business for a long period and consequently have little or no understanding and experience of the issues related to 'economies'. This experience will lead the company to the choice of a make or buy decision. Nooteboom suggests that:

> '…. the analyses of effects of firm size on transaction costs clearly indicates that on the whole transaction costs are higher for the smaller firms. They are not higher to same extent to all firms, in view of the diversity of small firms, but the effect is systematic and pervasive…' (Nooteboom, 1993, p.286).

Nevertheless, TCE can be a useful theory in explaining the situation of smaller businesses like MBs as well. MBs are more resource intense in nature compared to small businesses, which results in higher transaction costs. Hence, TCE can help in explaining the RL cost situations in the MB context. Indeed, literature reveals that due to its resource intense nature, RL, even for

large businesses, is not an easy option. Proactive firms tend to have their own infrastructure for executing RL related tasks. Hence, they make RL as one of their core agendas, because doing so, they believe, will bring competitive advantage which again aligns with the theory of RBV. However, reactive firms tend to see RL as a cost factor and tend to utilise third-party logistics or outsource to cut costs or to remove the RL related hassle, aligning with the theory of TCE. Consequently, larger firms are more likely to use the former approach whereas the latter is preferred more by smaller firms (Lau and Wang, 2009). However, the analyses of the various cost facets that prevails in RL have made the cost aspect complicated, and this may bring more complication in the MB context as there are multiple differences in MBs compared to large businesses. Thus, it is not clear what decisions micro firms will make in terms of the cost aspects related to RL. Consequently, this analysis has led to the second research question:

> **RQ2**: How do micro businesses address/perceive the costs involved in the process of reverse logistics?

4.4 Conceptual Framework

The literature review conducted on RL in Chapter 2, the review of MBs in Chapter 3 and the theoretical review made in this chapter, with the subsequent research questions, has made it possible to develop a conceptual framework for this study, which is presented in Figure 4.1. The 'Reverse Logistics Capabilities' box shows that firms, in general, may need to possess special capabilities to go through the process of RL. The 'RBV-Resource Based View' box provides an overview of the RBV theory, which corresponds with the firm's unique ability and capability, which again helps firms to gain sustainable competitive advantage. A relationship has been established between the 'Reverse Logistics Capabilities' box and the 'RBV-Resource Based View' box, as literature suggests that RL capability has the potential to bring sustainable competitive advantage to the firm, which again corresponds with the theory of RBV. The 'Micro Business Characteristics' box shows that MBs are different in many ways from their large counterparts, and that these businesses are the unique entity. One of the significant unique characteristics of MBs, among others, is that they are resource constrained in many ways. A relationship has been established between the 'RBV-Resource Based View' box and the 'Micro Businesses Characteristics' box, which describes that MBs, because of being resource constrained in many ways, need to identify and develop capabilities/resources that will help them to achieve sustainable competitive

advantage. However, the alignment with the ‘Reverse Logistics Capabilities’ box and ‘Micro Business Characteristics’ box shows that RL may have capabilities to provide needed benefits to MBs, however the resource intense nature of RL and resource constrained nature of MB makes this notion challenging. A proposition has been made that MB may benefit from RL, but at the same time they may have a hard time going through this process as result of their resource constrained nature. It is also believed that, as per their characteristics, MBs may have a unique and innovative way of going through the process of RL.

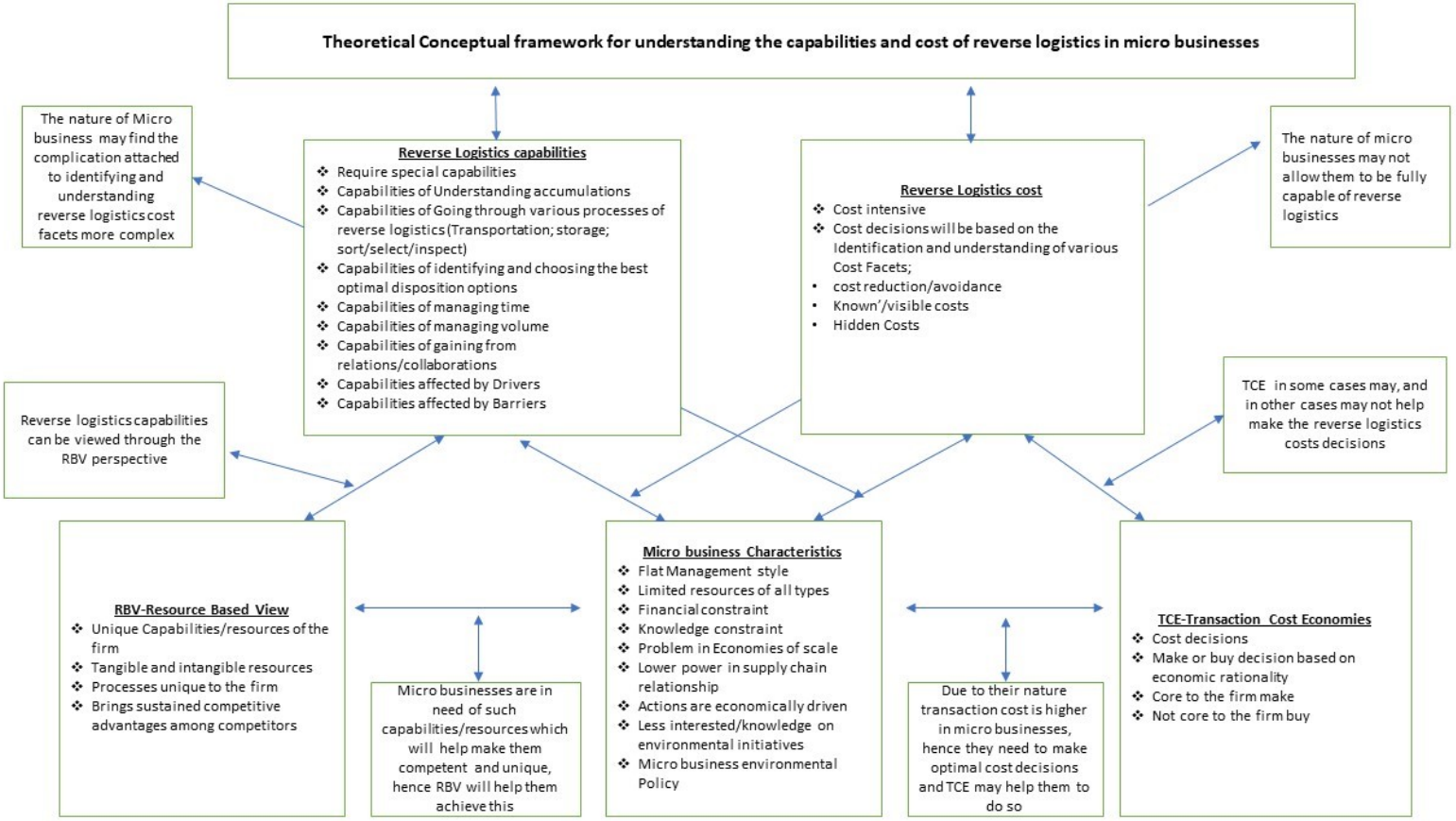

Figure 4.1 Conceptual Framework for Understanding Capabilities and Cost in Micro Firms

However, due to the lack of existing research on MBs and their relationship with RBV theory, this conceptual framework may not be sufficient to provide information on how MBs handle RL, in order to understand their capabilities. Hence, this research intends to understand the resources and capabilities MBs deploy to go through the process of RL and if the deployment of resources and capabilities assists them in the development of RL for sustainable competitive advantage. This also means that this conceptual framework needs to be tested using the empirical research.

The 'Reverse Logistics Cost' box shows that RL is a cost intensive task. This study acknowledges that if firms want to make optimal RL cost decisions, they may need to be vigilant in terms of the cost facets for this phenomenon, such as cost reduction/avoidance, known/visible costs and hidden costs. The 'TCE-Transaction Cost Economies' box provides an overview of TCE theory which corresponds with the optimal cost decisions of the firm, which again mainly relates to the make or buy decision based on economic rationality. A relationship has been established between the 'Reverse Logistics Cost' box and the 'TCE-Transaction Cost Economies' box. This study acknowledges that TCE may be a helpful theory in understanding the cost decisions for RL; however, this theory may not fully help in the making of optimal cost decisions if firms do not identify and understand the various cost facets related to this phenomenon. The 'Micro Business Characteristics' box shows that MBs are different in many ways from larger businesses and are unique. One aspect of MBs is that they do not have the advantage of economies of scale, and this may lead to higher transaction costs. A relationship has been established between the 'TCE-Transaction Cost Economies' box and the 'Micro Businesses Characteristics' box which describes that because they are resource constrained with higher transaction costs, MBs need to make more careful optimal cost decisions which may correspond with the theory of TCE. However, alignment with the 'Reverse Logistics Cost' box and 'Micro Business Characteristics' box shows that the cost of RL may be intense and complex, both of which may pose challenges for smaller businesses. A proposition has been made that MBs will have to deal with the costs associated with RL, but at the same time they may have a hard time making cost decisions as a result of their resource constrained nature. However, it is also believed that MBs may have unique and innovative ways of optimising the relevant costs. Due to rare existing research on MBs and their relationship with TCE theory, this conceptual framework may not be sufficient to provide information on how MB handle RL cost decisions. Hence, this research intends to understand how these businesses perceive and address the costs related to RL adoption in terms of making

optimal cost decisions. This also means that this conceptual framework needs to be tested using the empirical research.

4.5 Summary

This chapter has reviewed the theoretical aspects concerning RL, and has found that there is a paucity of literature concerning the theoretical aspects of this phenomenon. Most of the researchers who have studied RL in the past have not made use of theories to understand this phenomenon. Some authors, however, have used certain theories in their research. Resource Based View and Transaction Cost Economics are two of the most commonly used theories in the study of RL. The analysis made in this study reveals that these two theories can be used as lenses to study RL in the MB context. Moreover, the analysis of these two theories has helped lay down the two specific research questions for this study.

The RBV of a firm describes its capacity to deliver sustainable competitive advantage when resources are managed in such a way that their results cannot be copied by competitors, which finally generates a competitive barricade (Mahoney and Pandian, 1992). RL is part of a long-term business strategy to attain sustainable competitive advantage, which again adheres with the theory of RBV (Clendenin, 1997; Wells and Seitz, 2005). The essence of RBV blends with the phenomenon of RL. RL, however, demands special capabilities as going through this process is not as straightforward as going through the process of forward logistics. Existing literature depicts that even if a firm's RL capability can help bring sustainable competitive advantage, firms still struggle to maintain the resources and capabilities to perform this. Besides, it is not known if MBs who are resource constrained have the capabilities to go through the process of RL. Hence, the analysis has highlighted the need to understand whether MBs has the resources and capabilities to go through the process of RL for sustainable competitive advantage.

Transaction cost is concerned with the costs of an operation within the firm compared with the costs of using an external party to act for the firm (Williamson, 1985). TCE postulates the situations under which a firm should manage an economic exchange internally, within its boundary, or externally, through an inter-organisational arrangement (Maltz, 1993; Skjøtt-Larsen, 2000). RL is comprised of various costs and is known to be a cost intensive phenomenon. Literature reveals that firms with limited resources are more likely to outsource. On the contrary, stronger firms are more likely to develop their own infrastructure to execute the tasks related to

RL. Large businesses with a focus towards TCE may use many different alliance, partnership and collaboration options for executing all or part of the RL related tasks. Having one's own infrastructure is related to the decision to 'make' and using different alliances, partnerships and collaboration may relate with the decision to 'buy' (Lau and Wang, 2009). In other cases, businesses give no attention or importance to RL, because they do not consider them to be mainstream business activities. Additionally, as explained in Section 3.2, the cost decision can be complicated if careful consideration in identifying and understanding various cost facets of RL is not taken. It is imperative to understand how MBs, who are resource constrained, perceive/compensate for the cost of RL which is resource intense. Moreover, the theoretical analysis made in this chapter has made it possible to develop a conceptual framework for this study, which is presented in Figure 4.1.

Earlier studies on RL have focused primarily on large businesses, and there is a considerable lack of literature on MB RL. There are only handful of studies on small business RL, which again does not provide a holistic view. To obtain an in-depth understanding of the phenomena, an exploratory case study approach has been adapted for this study. Moreover, the theoretical analysis and conceptual framework outlined in this chapter have provided a better and clearer understanding of both the strategic and operational aspects of under-researched phenomena such as RL (Carter and Ellram, 1998). Nevertheless, the chosen theories provide an opportunity to explore the key aspects concerning MB RL, in order to understand both the capabilities and cost aspects concerning these businesses for RL.

The next chapter will consider the research philosophy and methodology, which will help to answer the two research questions proposed in this chapter

Chapter 5: Research Methodology

5.1 Introduction

This research is conducted in two phases: an initial scoping phase and a subsequent in-depth phase. The purpose of this chapter is to explain the rationale behind conducting this research in this way. In addition, this chapter elucidates the adopted research philosophy and research methodology.

5.2 Research Aims, Objectives and Questions

The literature review on RL in Chapter 2 portrayed that this phenomenon brings economic, environmental, CSR and green image benefits (Ravi and Shankar, 2005). However, it was also found that this aspect is equally an expensive and complicated act (Dekker et al., 2013). The literature on MBs depicted that, as in supply chain management, the management of RL may bring advancement in the MBs (Arend and Wisener, 2006). However, due to the complex and costly nature of RL (Mukhopadhaya and Setoputro, 2006) this activity may not be an easy option for MBs who are already resource constrained (Kelliher and Reinl, 2009).

The review of the theoretical approaches concerning RL presented in Chapter 4 has highlighted various theories that capture the essence of RL. Consequently, among various theories, the Resource Based View and Transaction Cost Economies are identified as the two main theories that can be used as lenses to help understand this phenomenon in the MB context.

Consequently, the two research questions for the main phase of the study which emerged from the literature reviews and theoretical foundations were:

> **RQ1:** Do micro businesses have the capabilities to go through the process of reverse logistics for sustainable competitive advantage? *(RBV focus)*
>
> **RQ2:** How do micro businesses perceive/address the cost involved in the process of reverse logistics? *(TCE focus)*

Due to limited existing studies on small business and RL and no prior research on MB and RL, an initial scoping phase of research was conducted to provide an initial understanding of RL in

MB. The result of this initial phase research was then used in designing the data collection for the in-depth phase of research, which conducted a detailed inquiry into this complex phenomenon in the MB context.

5.3 Research Philosophy

The research philosophy is the view that guides the research design and method, and has been termed variously by several authors as 'worldview' (Creswell, 2009) and 'paradigm' (Kuhn, 1962; Mertens, 1998; Lincoln and Guba, 2000). Research paradigm can also be described '*the basic belief system or world view that guides the investigator, not only in choices of method but in ontologically and epistemologically fundamental ways*' (Guba and Lincoln, 1994, p.105). Overall, the main reason to consider a philosophical standpoint in research is

> '… to clarify research design, this not only involves considering what kind of evidence is required and how it is to be gathered and interpreted, but also how this will provide good answers to the basic questions being investigated in the research to recognize which designs will work and which will not. It should enable the researcher to avoid going up too many blind alleys and should indicate the limitations of particular approaches… knowledge of philosophy can help the researcher identifies, and even creates, designs that may be outside his or her past experience. And it may also suggest how to adopt research designs according to the constraints of different subject or knowledge structures' (Easterby-Smith, Thorpe and Lowe, 2002, p.27).

The paradigm of inquiry cannot be understood completely without the discussion of the ontological and epistemological aspects hidden within it. Ontology relates to the '*nature of reality and its characteristics*' (Creswell, 2013, p.20), and '*stems from an enlightenment of metaphysical concern with reality or what exists*' (Howell, 2013, p.222). The questions asked relate to '*what is the form and nature of reality and, what is there that can be known about it*' (Guba and Lincoln, 1994, p.108). Whereas, epistemology identifies '*the relationship between the knower or the would-be knower and what can be known*' (Guba and Lincoln, 1994, p.108). This means that it concerns the understanding between the researcher and those being researched, and relates to the nature of knowledge and the justification of how we know what we know (Creswell, 2013). Over time, researchers have used their own view to explain the paradigms of inquiries or philosophical assumptions. Nevertheless, Table 5.1 (permission to reproduce this Table has been granted by Pearson) also shows that the ontological and epistemological assumptions can guide the philosophical standpoint of the researcher.

Various researchers may hold differing interpretations of their research, both ontologically and epistemologically, and accordingly choose the best fitting research paradigm. However, what the main research paradigms are may again depend upon the authors' viewpoint. For instance, Brannen (1992) suggests that research study can fit into the paradigm of either the socio-constructivism or the positivist paradigm, however researchers like (Saunders, Lewis and Thornhill, 2009), as explained in Table 5.1, suggest that Positivism, Realism, Interpretivism and Pragmatism are the main paradigms.

	Positivism	**Realism**	**Interpretivism**	**Pragmatism**
Ontology: the researcher's view of the nature of reality or being	External, objective and independent of social actors	Objective. Exists independently of human thoughts and beliefs or knowledge of their existence (realist), but is interpreted through social conditioning (critical realist)	Socially constructed, subjective, may change, multiple	External, multiple, view chosen to best enable answering of research question
Epistemology: the researcher's view regarding what constitutes acceptable knowledge	Only observable phenomena can provide credible data, facts. Focus on causality and law like generalisations, reducing phenomena to simplest elements	Observable phenomena provide credible data, facts. Insufficient data means inaccuracies in sensations (direct realism). Alternatively, phenomena create sensations which are open to misinterpretation (critical realism). Focus on explaining within a context or contexts	Subjective meanings and social phenomena. Focus upon the details of situation, a reality behind these details, subjective meanings motivating actions	Either or both observable phenomena and subjective meanings can provide acceptable knowledge dependent upon the research question. Focus on practical applied research, integrating different perspectives to help interpret the data
Axiology: the researcher's view of the role of values in research	Research is undertaken in a value-free way, the researcher is independent of the data and maintains an objective stance	Research is value laden; the researcher is biased by world views, cultural experiences and upbringing. These will impact on the research	Research is value bound, the researcher is part of what is being researched, cannot be separated and so will be subjective	Values play a large role in interpreting results, the researcher adopting both objective and subjective points of view
Data collection techniques most often used	Highly structured, large samples, measurement, quantitative, but can use qualitative	Methods chosen must fit the subject matter, quantitative or qualitative	Small samples, in-depth investigations, qualitative	Mixed or multiple method designs, quantitative and qualitative

Table 5.1 Comparison of 4 Research Philosophies in Management Research
(Source: Saunders, Lewis and Thornhill, 2009, p.119)

Positivism envisages the natural scientific methods to social reality and beyond (Bryman and Bell, 2011). According to this philosophy the social world should be assessed through objective view rather than a subjective method. This philosophy assumes that the researcher makes no impact on the examination of social reality as they view reality as an independent form (Creswell ,1994). According to this standpoint, the subjective method uses attributes such as reflection or intuition, whereas positivists accept that the existence of the social world is external (Easterby-Smith, Thorpe and Jackson, 2012). Positivism assumes that research can measure social phenomena, and hence is concerned with quantitative research (Collis and Hussey, 2009). Positivists are more prone to adopt a very structured methodology which makes replication easy (Gill and Johnson, 2010). Researching causal relationships with the collection of quantifiable data that is observable is the principle of positivism. Apart from this, hypothesis development using the existing theory is another principle of positivists (Saunders, Lewis and Thornhill, 2012).

However, various authors have identified the weaknesses attached with the positivist paradigm, hence the paradigm that deals with interpretivism, phenomenology or social constructivism has emerged. Constructivists have their roots attached with the notion of phenomenology and interpretivism, and the philosophical view of constructivists holds the belief that objective knowledge and truth is the result of our perspective (Schwandt, 1998). Easterby-Smith and Thorpe (1991) suggest that phenomenology is based on the notion that reality is socially constructed rather than externally determined, and research therefore should attempt to assess the reasons and meanings behind different people's experience. This philosophy sees both data and analysis as created from shared experiences and relationships with participants (Charmaz, 2006). As Schwandt (1998) points out, '*knowledge and truth are created, not discovered by mind*' (p.236). This view advocates that reality should be locally constructed, and is based on shared experiences (Howell, 2013). Also, human beings' construction of interpretation does not occur in isolation, but rather is intertwined with other shared factors including understanding, practices, language and so forth, or '*a variety of social and cultural factors that lead to shared construction*' (Guba and Lincoln, 1989, p.12). Social constructivism gives the researcher an opportunity to discover the '*subjective meanings of experience… these meanings are varied and multiple, leading the researcher to look for the complexity of views rather than narrow the meanings into a few ideas*' (Creswell, 2013, p24). Indeed, these subjective meanings are often negotiated socially and historically through interaction with others (Creswell, 2013). This view also enables the

researcher to learn how, and to what extent, the studied experience is embedded in large and often hidden positions, networks, situations and relationships (Guba and Lincoln, 1994), which is indeed achieved by interacting with these individuals in their natural settings. This paradigm places more emphasis on '*processes than structures*' (Burr, 2003, p.9) and accepts that interpretation is itself a construction of the inquirer, made about the actors under investigation. Constructivist researchers often address the processes of interaction among individuals with '*focus on the specific contexts in which people live and work, in order to understand the historical and cultural settings of the participants*' (Creswell, 2009). Overall, this view helps to understand the subjective meanings and experiences of the actors within the context studied through social constructivism, which represents an attempt to achieve objectivity by acknowledging the subjectivity of the research (Howell, 2013).

However, due to the problems attached with the interpretive research methods, the 'realist' and the 'critical realist' paradigms have come into focus, which can be seen in the work of Hammersley (1990) and Silverman (1997). The ontology related to realism envisages that, beyond human knowledge, there is an objective real world which means an objective reality exists. Critical realists argue that due to our imperfect ability to know this reality, reality must be examined in a widely critical way to allow the possibility of understanding the reality in the finest way. Epistemologically, realists will not be able to separate themselves from what they know, which means the researcher and the phenomena they research are connected. Hence, our identity and how we understand the world plays a pivotal role in how we understand ourselves, others, and the world (Guba and Lincoln, 1994). Besides, 'objectivity' can be perfectly attained if the researcher uses careful sampling and specific research techniques (Maxwell, 1992). This paradigm advocates that positioning reality by separating them from our knowledge of it can provide an objective reality, which again can bring trustworthiness or reliability into the outcome of the research (Angen, 2000). However, the realist paradigm is also criticised because this paradigm is inherent the researchers' values in the phases of the research process, where the reality can be negotiated through dialogue. Hence, the objective reality cannot be seized in a perfect manner. Moreover, authors such as Guba and Lincoln (1994) argue that 'objectivity' is ideal to achieve and can be attained through the use of good qualitative research methods.

The above discussion shows that none of the paradigms of enquiry are perfect on their own and due to the weaknesses attached with the earlier ones, a new paradigm emerges (Gage, 1989).

Consequently, authors like Peirce, James, Mead and Dewey (as cited in Cherryholmes, 1992) developed the philosophy of 'pragmatism' as a new paradigm of inquiry, which considers the actions, situations, and consequences of the studied phenomena rather than the precursor conditions, as it is for the positivist approach. '*Pragmatists start with a Darwinian account of human beings as animals doing their best to cope with the environment - doing their best to develop tools which will enable them to enjoy more pleasure and less pain*' (Rorty, 1999, pp.22-23). This way the researchers are more prone to use those methodological approaches which are likely to produce the lucid explanation of why a particular situation is occurring. This will enable the researcher to develop a set of recommendations which adhere with the situation of the organisation. Consequently, the pragmatist paradigm may also be known as 'action research' which helps to provide knowledge that is more practical for use in everyday life (Reason and Bradbury, 2001). Hence, 'practicality' or choosing the way which suits the situation is advocated by the pragmatic approach. This also means that pragmatists do not limit their research method either to the positivist or the interpretivist approach (Easterby-Smith and Thorpe, 1991; Reichardt and Rallis, 1994). Pragmatists see the choice of the paradigm, one or the other, as obstructive and instead prefer to pick, modify or mix the positions which will allow them to answer their research question in the best possible way (Tashakkori and Teddlie, 2010). Hence, pragmatism enables the researcher to adhere with the nature of their research and research question without compromising the integrity of their research (Tashakkori and Teddlie, 2010), which is also the case with the nature of the current research. The nature of the research context and research questions are different for different types of research, which consequently drives the utmost suitable methodological approach (Nastasi, Hitchcock and Brown, 2010). Hence, philosophical assumptions should by no means hinder or limit the selection of the most appropriate method for a given inquiry (Patton, 1988), which again adheres with the nature of this research.

5.4 Inductive, Deductive and Abductive Reasoning

It becomes important to establish a reasoning approach for any research study, as this allows the researcher to make an informed decision about the methodological choices and research strategies that cater for the whole situation of the research (Easterby-Smith, Golden-Biddle and Locke, 2008). Researchers tend to focus their study either on the inductive (Mintzberg, 1979) or deductive (Leonard and McAdam, 2001) spectrum. The inductive approach proceeds from data to theory, while the deductive approach proceeds from theory to data. This means, an inductive

approach is about moving from observation of the empirical world to the construction of explanations and theories (Gill and Johnson, 2010), while a deductive approach is about the development of a conceptual and theoretical structure prior to its testing through empirical observation (Leonard and McAdam, 2001). Literature review on RL revealed that even if this phenomenon has been known within academia for some time, it is still in the developing stage, relatively speaking. Besides, this phenomenon for the current research is to be studied in the context of MBs, which again is a complex and diverse context. Nevertheless, the review on the theoretical approaches concerning RL confirmed that this phenomenon is not theoretically matured, as most of the past researchers who contemplated this phenomenon did not use the theory to explain this. Moreover, due to having no prior research on MB RL, a solid and a promising conceptual framework was not easy to specify. Deductive research is theory-testing, and inductive research is theory-generating (Hammersley and Atkinson, 1995; Creswell, 2002). For this study, the researcher believes that the phenomenon of RL is not theoretically mature enough, hence the theory is not ready to be tested. The researcher also understands that there has, however, been some attempt made by previous researchers to build the theory. Hence, even if this study begins with the theoretical underpinnings (related to the deductive approach), the theoretical background has not matured enough, but the outcome of the research can still bring brand-new theory (related to the inductive approach) which will only be understood by the end of the research. This research cannot be pinned down as an inductive or a deductive study. This dilemma has, again, prohibited the researcher to take either the positivist or the interpretivist stand, as interpretivists and positivists are typically prone to positioning their study either on inductive or a deductive strand (Patton, 1988). Moreover, choosing one or the other paradigms of inquiry demands to look at the research purely objectively or purely subjectively (Patton, 1988) which may also not be possible given the nature of this research. The epistemology for the objectivist is based on the idea that knowledge exists independently of any consciousness, while subjectivism, in disparity, is based on the idea that knowledge is imposed on the object by the subject (Crotty, 1998). Sequentially, authors such as Tashakkori and Teddlie (1998) believe that the process of collecting data using inductive/deductive logic is sequential and iterative, and can go through several cycles. Also, other creative combinations of the two approaches are possible (Tashakkori and Teddlie, 1998), known as the abductive approach (Dubois and Gadde, 2002). The abductive reasoning approach has become one of the most heavily used reasonings in business management research (Saunders, Lewis and Thornhill, 2009), as the abductive

approach is about moving back and forth from induction to deduction and deduction to induction rather than sticking to one reasoning (Suddaby, 2006). Moreover, abductive reasoning can be the way forward for pragmatic philosophy (Macagno and Capone, 2016) as

> 'the development of the logical form of an utterance is regarded as the result of an abductive pattern of reasoning in which various types of presumptions are confronted and the weakest ones are excluded' (Macagno and Capone, 2016 p.399).

The discussion of the reasoning (either inductive, deductive or abductive) shows that the pragmatic approach is considered appropriate for this research. Pragmatism also:

> '….gives us a paradigm that philosophically embraces the use of mixed method and mixed model designs, it eschews the use of metaphysical concepts (Truth, Reality) that have caused much endless (and often useless) discussion and debate, and it presents a very practical and applied research philosophy: study what interests and is of value to you, study it in the different ways that you deem appropriate, and use the results in ways that can bring about positive consequences within your value system' (Tashakkori and Teddlie, 1998, p.30).

The above discussion leads this research to consider the pragmatic approach which does not take the standpoint of one paradigm of enquiry, but which mixes and matches the paradigms, consequently mixing the reasoning and methods to answer the research questions in the best possible way. The pragmatic approach advocates mixed methods rather than taking only a quantitative or qualitative strand, as attached to the positivist or interpretivist paradigm.

5.5 Mixed Method Research Approach

Some studies have considered qualitative and others have considered quantitative approaches as the dominant approach to be used for the research. However, there has been a continuous struggle between qualitative and quantitative approaches, as the advocates of each method see weaknesses in the others' approach and find strength in theirs (Guba and Lincoln, 1989; Sechrest, 1992). RL in the MB context is an unexplored area, and Silverman (2000) suggests that the mixed methods approach will be the most appropriate for the type of research under investigation as this method draws upon the strengths of both qualitative and quantitative methods, shadowing their weaknesses (Johnson and Onwuegbuzie, 2004). Since this research considers using the pragmatic philosophy, mixed method and mixed model studies can be the best approach for this paradigm of enquiry (Tashakkori and Teddlie, 2003; Creswell and Clark, 2007). Quantitative and qualitative methods are compatible and can be mixed (Howe, 1988; Brewer and Hunter,1989), as '*there are enough similarities in fundamental values between the QUANs and the QUALs to form*

an enduring partnership' (Reichardt and Rallis, 1994, p.850). Consequently, a growing number of researchers advocate combining both quantitative and qualitative methods (Tashakkori and Teddlie, 1998; Creswell and Clark, 2007; Greene, 2008). Most researchers now use whichever method is most appropriate for their studies rather than relying on just one method, as mixing methods will allow the researcher to have a complete view of the phenomenon. This allows the problem to be viewed from various angles, providing a holistic picture of the issue (Brannen, 2005; Creswell and Clark, 2007). Besides:

> 'Mixed methods research is practical in the sense that the researcher is free to use all methods possible to address a research problem. It is also practical because individuals tend to solve problems using both numbers and words; they combine inductive and deductive thinking' (Creswell and Clark, 2007, pp.9-10).

Overall, Greene, Caracelli and Graham (1989), after a widespread literature review, identified five different reasons that demonstrate why using mixed methods can be justifiable: triangulation, or seeking convergence of results; complementarily, or examining overlapping and different facets of a phenomenon; initiation, or discovering paradoxes, contradictions, and fresh perspectives; development, or using the methods sequentially, so that the results from the first method inform the use of the second method; and expansion, or mixed methods adding breadth and scope to a project. From these explanations, it is clear that this research intends to use the mixed method approach. However, mixed method research can be characterised as a complex methodological approach which may need careful understanding and planning. Nonetheless, careful consideration in designing this research is inevitable, as the researcher for this study intends to conduct this research in two phases.

5.6 Multi-phase Mixed Method Research Design

A multi-phase mixed method is considered a forward-thinking research design method, as this research method allows the researcher to mix several methods at various phases of research for a valid and reliable research outcome (Creswell, 2013). As discussed in the literature review, RL is an under-researched phenomenon. In addition, no prior research has been found on the RL aspects concerning MBs. This posed a problem in developing a clear conceptual framework which would allow a clear preconception of the capabilities and costs in the MB context. Moreover, the lack of adequate preunderstanding on the issues to be researched was less likely to provide a base for precisely designing the data collection of the final research phase. Hence, as shown in

Table 5.2, the researcher decided to develop a two-phase study. The initial phase was conducted to obtain a preliminary understanding of the RL phenomenon in the MB context. The result derived from this initial research will help define and refine an in-depth phase.

Research Phase	Purpose of the Phase	How the Result Will be Used
Initial phase	To have an initial understanding of the reverse logistics in micro businesses	To design the in-depth phase
In-depth phase	To have an in-depth inquiry of reverse logistics in the micro businesses	To understand the reverse logistics cost and capabilities in micro businesses

Table 5.2 Multi-phase Research Rationale

The idea of the mixed methods is not to eliminate either the quantitative or qualitative approaches, but rather to extract the strengths and minimise the weaknesses from both approaches. Mixed methods research drives researchers to consider the dualism that has traditionally been debated by the advocates of the qualitative and quantitative paradigms and consider a pragmatic approach that will improve the quality of the research outcome in the best possible way (Johnson and Onwuegbuzie, 2004). A careful identification and choice of the available research methods under both quantitative and qualitative methods was necessary, which could be mixed and matched for the desired outcome.

Qualitative Research Methods	Quantitative Research Method
• Ethnography (Howell, 2013; Creswell, 2009) • Action research (Collis and Hussey, 2009; Macniff, 2013) • Grounded Theory (Corbin and Strauss, 2008; Glaser and Strauss, 1967) • Narrative; in-depth interviews; phenomenology (Moustakas, 1994; Creswell, 2009; Neuman, 2006; Veal, 2006, Cavana, Delahaye and Sekaran,2001) • Case studies (Yin, 2003; Yin, 2009)	• Surveys (Saunders, Lewis and Thornhill, 2012) • Experimentation (Cooper, Schindler and Sun, 2006)

Table 5.3 Qualitative and Quantitative Research Methods

The question arises as to which methods should be mixed and how to go about it for the desired result. Morse (1991) suggests using qualitative research for the first phase research and mixing the qualitative and quantitative for the final phase. However, whichever method with the capability

to provide the desired outcome can be used by the researchers (Brannen 2005; Creswell and Clark, 2007). Moreover, research studies are varied in nature, and the adoption of the research methods will vaguely depend upon its nature (Nastasi, Hitchcock and Brown, 2010). Consequently, considering the nature of the available research methods under both qualitative and quantitative, this research has used the quantitative survey and qualitative interview for the initial phase study. For having an in-depth enquiry, a case study approach was deemed appropriate for the final phase study. The data collection method used for both the study phases will be discussed in the next section. The research design framework which came out of the discussion in this section is presented in Figure 5.1.

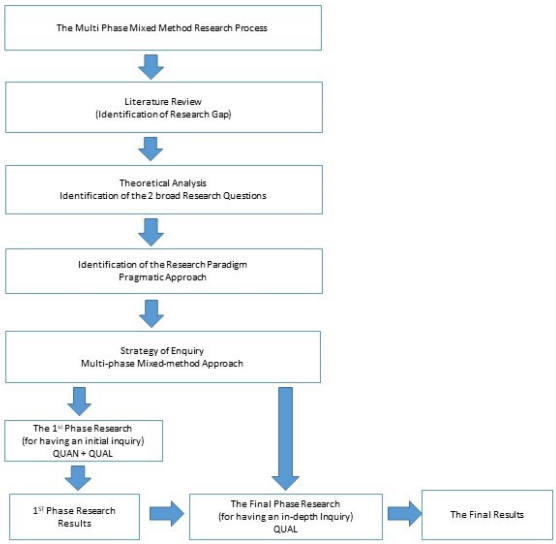

Figure 5.1 Multi-phase Mixed Method Research Process

5.7 Designing the Initial Phase of Research

This first phase of research was conducted to understand some of the fundamental aspects concerning RL in the MB context, which could be used as a guide in designing the data collection for the final phase study. This used mixed methods, as a combination of both the qualitative and quantitative strategy of inquiry (Sandelowski, 2000). Using the combination of methods assists to '*develop rich insights into various phenomena of interest that cannot be fully understood using*

only a quantitative or a qualitative method' (Venkatesh, Brown and Bala, 2013, p.21), which was an appropriate method for the under-researched phenomenon of RL in the MB context. Consequently, a quantitative survey and qualitative semi-structured interview were used for the first phase research, as a mixed method approach.

5.7.1 Sample Selection

It may not be possible to 'study everyone everywhere' (Miles and Huberman,1994, p27). Questioning who to study and how many to study will help in generalising the findings of the research. The question of inference may not arise if the researcher does not wish to generalise the findings (Punch, 2013). The first research phase for this study is used as a scoping phase, which will help in designing the final phase research. This means the researcher does not aim to generalise the findings from the first phase research, but aims to use the findings of the first phase to design the final phase research. A pragmatic philosophy has allowed the researcher for this research to use whichever method is the most appropriate to help to answer the research questions. Nonetheless, careful consideration was given when selecting the appropriate samples, as this will increase the validity and reliability of the study. Nevertheless, the population for the research is to be determined before the selection of the sample, as this approach will allow selection of the most appropriate samples (Teddie and Yu, 2007). The literature review on RL confirms that all stages of the supply chain, such as manufacturers, wholesale/distributors and retailers are affected by RL. It has also been confirmed that there may be both similarities and differences in the way these supply chains progress with the RL process. This research aims to explore the RL aspects concerning micro retailers, as retail RL is the extreme case for the study of RL because they deal directly with end customers who may want to return goods to them. Nevertheless, retailers are also the ones who may have to deal with the high quantity of unsold and excess goods (Brennon and Cullen, 2007). Furthermore, due to their infrastructure, they may have limited disposal options compared to manufacturers, and options like refurbishing, recycling and remanufacturing may not be available to the retailers (Stock and Mulki, 2009). Due to the limited resources and infrastructure, it is likely that micro retail businesses will find the complex nature of RL more tough to implement. However, the lack of any existing study on small or micro retail businesses RL means that nothing can be said with accuracy. Hence, this research aims to study the RL of micro retail businesses. This means it became imperative to limit the population to MBs who fit with the MB definition, as mentioned in Chapter 3. As per the definition of

population, a purposive sampling method was used to find the relevant samples (Maxwell, 1996). The whole of the Devon and Cornwall area was chosen, from which the samples were selected.

5.7.2 Data Collection Method

A mixed methods approach is the most appropriate method of investigation to study an under-researched area (Silverman, 2000), and this research considers RL in the MB context as an under-research area. Mixed methods allow the researcher to draw upon the strengths of both qualitative and quantitative methods, shadowing their weaknesses (Johnson and Onwuegbuzie, 2004). As mentioned in Table 5.3, data can be collected using both qualitative and quantitative approaches under a mixed methods approach. Accordingly, both qualitative and quantitative modes of data collection were used for the first phase study.

Among the qualitative data collection methods mentioned in Table 5.3, a qualitative semi-structured interview was deemed appropriate, and among the quantitative data collection methods, again mentioned in Table 5.3, quantitative survey method was deemed appropriate for the initial phase study. The rationale for using these modes of data collection method and the way they were carried out will be outlined in the sections below.

5.7.2.1 Survey

Survey is a research method under the quantitative approach that studies a sample of subjects taken from a defined population (Collis and Hussey, 2009). 'A survey design provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population' (Creswell, 2009), which was a suitable method to collect the numeric data on the RL behaviour of the defined population. In the past, various researchers such as Daugherty et al. (2005), Skinner, Bryant and Richey (2008), Chiou et al. (2012) and Hsu, Tan and Zailani (2016) have used surveys as data collection method for their studies related to RL.

A structured questionnaire under the survey method was designed for collecting data (Saunders, Lewis and Thornhill, 2012). The survey questionnaire was based on the literature on RL and MBs. As outlined in sections 2.3, 2.4, 2.5, 2.7 and 2.8 of the literature review, the survey questionnaire was designed to explore some essential aspects that would affect the RL process in MBs. In which categories are the goods likely to accumulate? In what volume do goods accumulate in the various categories? Do firms keep track records of the accumulated goods? What disposal options are used? What motivates firms to manage goods in the reverse channel? How much

time is required to manage these goods? These were the type of questions asked in the survey questionnaire – see Appendix B for the survey questionnaire. To acquire the desired response rate, a clear and to-the-point cover letter stating the reasons for the study was used (Bryman and Bell, 2011) (see Appendix A). To help increase the response rate, the questionnaire was designed to be short, with closed questions (Collis and Hussey, 2009) and an attractive layout with clear instructions (Bryman and Bell, 2011).

The questionnaire was pretested and revised in two different phases: firstly, with peers and academics, and secondly with real businesses. Surveying MBs can be a complex problem – busy MB owners mean that it is hard to gather respondents (Karagozoglu and Lindell,1998), and even when you do, the data validity is questionable. Nevertheless, the survey was sent to 500 micro retail firms over the internet (Saunders, Lewis and Thornhill, 2012) which was deemed the most convenient means of distributing the survey (Bryman and Bell, 2011). The web-based survey software Qualtrics was used to send the questionnaire. What constitutes a good response rate varies among researchers; for example, 20% (Easterby-Smith, Thorpe and Jackson, 2012); 50% (Roth and BeVier,1998); 60% (Fowler, 1984) and 80% (De Vaus,1986) are all posited as being optimal rates of response. 30 out of 500 respondents filled out their questionnaire via the internet.It was expected that a good response rate would be achieved within the first six weeks, as the time frame of two to six weeks for internet/intranet responses and four to eight weeks for postal responses can be allowed to collect the data using the survey method. The required timeframe, however, may also depend upon the extent of the survey and what geographical area is to be covered (Saunders, Lewis and Thornhill, 2007). 30 valid responses out of of the 500 questionnaires were received within the first six weeks. This means the desired response rate was not achieved within the first six weeks. This could be due to the demerits attached to the web-based questionnaire; for example, perhaps the respondents did not fill out the questionnaire because they did not understand the question or felt that the questions were not relevant to them (Bryman and Bell, 2011) or being micro in size they did not had enough time to fill it out. Follow-up emails were sent to achieve the desired response rate (Sekaran and Bougie, 2009), but this did not seem to work either. The researcher then approached 100 respondents with the paper based questionnaire for self administered survey, out of which 90 valid responses were received. This means that the researcher for this study made extra effort to achieve a good response rate (Campion, 1993). This action also adheres with the notion that questionnaires can be both ‘self-

completed' by the respondents, or 'interviewer-completed' by the researcher (Saunders, Lewis and Thornhill, 2012, p.420). Overall, a valid response rate of 20% (Easterby-Smith, Thorpe and Jackson, 2012) was achieved using both the internet and the self-administered survey.

Rubio, Chamorro and Miranda (2008), in reviewing the RL research from 1995-2005, found that research on RL was the focus of developed countries like the Netherlands, Germany and the USA, as the former two countries were influenced by legislative take-back, and US firms were influenced by large customer return rates due to liberal returns policies provided by the firms. However, authors in recent years have also started focusing their RL studies on developing countries (Cruz-Rivera and Ertel, 2009; García-Rodríguez, Castilla-Gutiérrez and Bustos-Flores, 2013), as these issues have not remained untouched in these countries. This means the study of RL is becoming popular in both developed and developing countries. Nevertheless, study on MBs has been conducted both in developing countries (Banki and Ismail, 2015) and developed countries (Jones et al., 2014) where there also becomes possible to make study on MB RL in any of these countries. Furthermore, the current study is the first to concentrate on MB RL using a pragmatic approach, as the most appropriate manner for data collection (Brannen 2005; Creswell and Clark, 2007). Consequently, the researcher for this study believes that the research can be conducted in either area, and samples can be chosen from wherever possible. Since there was no specific reason to choose samples from a specific area, the geographical area chosen for the survey was Devon and Cornwall in the UK, which was in convenient proximity of the researcher (Emerson, 2015). The survey was conducted first, which helped in the selection of respondents for the interview stage (Rogers and Tibben-Lembke, 2001).

5.7.2.2 Semi-structured Interview

Interviews can be '*unreliable, impressionistic, and not objective*' (Denzin and Lincoln, 2000, p.12) if they are not planned in a proper way (Hannabuss,1996). Hence, to get effective results and to ensure construct validity, careful consideration in planning the interview has been given (Doyle, 2004). Unit of analysis is the basis of understanding the interviewees for the semi-structured interview for this study. The unit of analysis in this study is UK Micro Retailers and their RL process (Yin, 2009). Hence, the owner/managers who were the central people of the firm were interviewed. To have a pre-understanding of what questions to ask in the interview (Gummesson, 2000), the interview guidelines were again based on the RL and MB literature. In designing the semi-structured interview, a framework of themes was developed using some of the fundamental

aspects concerning RL. These aspects were also used in designing the survey questionnaire. The aspects, as outlined in Appendix B, considered for interview were: volume of the goods accumulation in the reverse channel; record keeping of these goods; disposal options (Bernon and Cullen, 2009; Cullen et al., 2013); time required to extract value from these goods (Lieckens and Vandaele, 2007; Sonya Hsu, Alexander and Zhu, 2009); and motivation to deal with these goods (Ravi, Shankar and Tiwari, 2005). Interview guidelines were pretested and revised in two different phases, first with peers and academics, and second with real business owner/managers. The wording and arrangement of all the questions in the interview were made consistent so that any variations in the answers would be due to the variations in the respondents' view, and not because of the types of questions asked (Gordon, 1975). Again, this would ensure the validity and reliability of the data collected (Denzin, 1989). In due course, as outlined in Appendix B, rather than providing a structured questionnaire format, a set of questions accompanied with themes, concepts, words and phrases as an interview guide, were used (Reuter et al., 2010). A face-to-face interview was used which enables the capture of small utterances and visual cues, and 'prompting and probing' was used to get the answer out of the interviewer (Stephens, 2007, p.9). However, to avoid an impact on the respondent that could create bias in the data collected (Charmaz, 2006), the researcher concentrated on the objectivity, rather than the subjectivity of the issue as much as possible. To avoid putting off the interviewee, a considerable amount of time was allocated for the interview (Hansen, 2006). Hence, the interview was made to last for no more than an hour for each business. Interview recording was carried out using the very common audio recording method (DiCicco-Bloom and Crabtree, 2006). Memos and notes compiled from the semi-structured interviews were also used to record the data. Recording and keeping track of the interview process was kept similar for all the interviews to ensure the construct validity. Rapport and trust were established with the respondents with a few advanced visits, which helped to extract answers for the interview questions (DiCicco-Bloom and Crabtree, 2006). A combination of purposive and convenience sampling technique was used for the interview in the first phase study. Fifteen owner/managers were chosen from those that were surveyed, who gave their consent for the interview during the survey.

Figure 5.2 shows the research process diagram for the initial phase research.

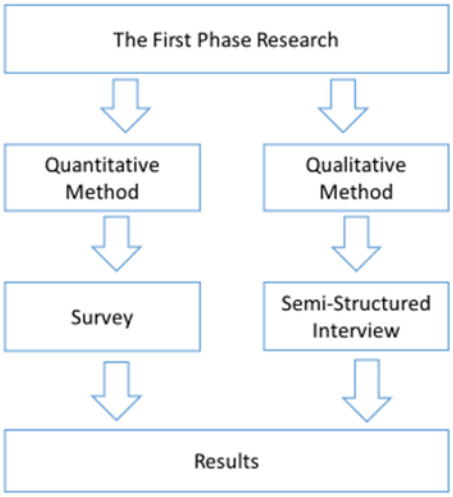

Figure 5.2 The First Phase Research Design

5.8 Designing the In-depth Phase of Research

The result of the initial phase was used to refine and define the data collection for the next phase of research. As the literature on the theoretical aspects of RL in MB is in the early stages, the researcher has not found an adequate theoretical aspect on the phenomenon through which a hypothesis can be formulated and through which a deductive approach can be taken. Although the research aims, objectives and research questions are guided by the theoretical foundation, the content and context of the research both being complex and diverse in nature, an abductive approach, which is the result of the iterative inductive and deductive approach, was suitable. It can be argued that the aim of the final phase research is not the formation of a brand-new theory; however, the possibility of further understanding, development and modification of the existing theory, as they are in the early stages, cannot be denied.

5.8.1 Strategy of Inquiry

A case study approach has been recognised as the most appropriate research strategy for this phase under the pragmatic research paradigm. This strategy was also found to be suitable because it allows data to be collected using a range of data collection methods, which also has the potential to fulfil the criteria of a mixed methods approach. Nevertheless, in studying the

research characteristics of RL from 1995 to 2005, Rubio, Chamorro and Miranda (2008) found that the qualitative method of inquiry was one of the most popular methods of inquiry among RL researchers.

According to Creswell (2009), '*case studies are a strategy of inquiry in which the researcher explores in depth a program, event, activity, process, or one or more individuals*'. It is a complete review, made either in the 'field', 'single instance', 'event', or 'setting' (Tharenou, Donohue and Cooper, 2007). It can also be useful tool to analyse whether the existing theories on a phenomenon for an existing context are applicable in a new context (Lau and Wang, 2009). Besides:

> 'case studies can be used to study, 'certain types of problems: those in which research and theory are at their early, formative stages; and sticky, practice-based problems where the experiences of the actors are important, and the context of action is critical' (Benbasat, Goldstein and Mead,1987, p.369).

Hence, the scarce and underdeveloped phenomenon of RL in the MB context can be developed further through the case study approach.

The characteristics of case study as a qualitative research approach (Stake, 1995; Yin 2003), where constructivism is built upon the foundation of a social construction of reality (Searle, 1995), matches the requirement of this research method. The purpose of a case study is to understand the 'processes' of a content in a particular environment or cultural setting (Tharenou, Donohue and Cooper, 2007) which will allow the researcher to understand the RL process of MBs in their setting. This method enables the researcher to gather the information and '*to retain the holistic and meaningful characteristics of real- life events-such as individual life cycles, organisational and managerial processes*' (Yin, 2003, p.2) in relation to activities connected to RL.

Nonetheless, '*case study is in fact commonly adopted in reverse logistics research to explore the various issues involved*' (Lau and Wang, 2009, p.452). For example, Tan and Kumar (2006) use a case study approach to demonstrate a decision-making model for manufacturers to maximise their profits in RL operations. Wu and Cheng (2006) adopt a multiple-case approach to compare the characteristics of RL in the publishing industry in China, Hong Kong and Taiwan. Li and Olorunniwo (2008) also explore the RL practices of three companies using a case study approach to determine the necessary information technology and resource commitment a firm requires in running an effective RL system, to see how these elements can be integrated across the supply

chain. Lau and Wang (2009) used the case study method to explore RL aspects in the industrial sector in the Chinese context. Likewise, Dowlatshahi (2012) used the case study method to understand the warehousing aspect of RL, and Ngadiman et al. (2016) used the case study approach to understand RL issues in the food industry in Malaysia. De Brito, Dekker and Flapper (2004), after making review of 60 case studies concerning RL issues, found that the case study approach was the most widely used methodology for the study of RL, where 20% of the cases they found were based on wholesalers and retailers. Hence, researchers who deal with RL aspects are more keen to use case studies, which is consistent with the qualitative methodology (Rubio, Chamorro and Miranda, 2008).

Case studies can be exploratory, explanatory, or descriptive (Yin, 2003). Exploratory study which can be used to explore the under researched phenomenon fits with this research. For this study (being from a qualitative approach), a case study which is widely mentioned as the preferred strategy of inquiry in qualitative study (Creswell, 2007) is a coherent method for this research.

5.8.2 Case Study Design

Planning and designing may be critical for any research, but nonetheless, planning and designing play a more significant role in the case study approach. Authors such as Baxter and Jack (2008), Gummesson (1991) and Yin (2003, 2009), have all come up with ideas of what constitutes case study design and why this is important. These authors have come to a consensus that the case design should be able to produce a reliable, valid and generalisable effect, as this could be one of the weaknesses of the case study if enough consideration in planning is not given. This also means that, overall, rigour should be maintained in case study research, through maintaining a systematic criteria and protocols. Hence, careful consideration on unit of analysis, sampling methods, data collection methods, and data analysis techniques need to be given (Yin, 2011).

5.8.3 Sample Selection for Case Study

As was done for the first phase study, careful consideration in selecting the appropriate samples for the final phase study was taken. This has again helped in increasing the validity and reliability of the study. Yin (2003) suggests that cases could be an ‘individual’, ‘event’ or ‘entity’. Yin further explains that the research question will help lead the case choice. The first phase research used a purposive sampling method and selected micro retail businesses for this study from the south west of the UK. Nonetheless, one of the reasons for conducting the first phase study was to obtain

a choice of cases for the final phase study. Respondents who participated in the first phase study were asked if they would like to participate in further investigation for the in-depth final phase study. A total of six cases were chosen from those businesses who gave their consent to participate in the final in-depth phase of the study. The rationale for using the six cases for the final phase study will be explained in section 5.8.4.

5.8.4 Number of Cases

The main drawback of using the case study method relates to the difficulty in generalisation to other cases (Tharenou, Donohue and Cooper, 2007). The small unit in the case study method can prohibit generalisation of findings that would replicate the situations of the whole population (Merriam, 1985). However, this limitation can be overcome by selecting multiple cases (Yin, 2004). Between four and ten cases is preferable when conducting a case study as it may be difficult to come to a saturation point with fewer than four cases, and cases become unmanageable if they number more than ten (Eisenhardt, 1989). In due course, to answer the research questions, six cases seemed appropriate for this research. The case number, however, could have been increased if the saturation point was not reached from the six cases (Mason, 2010). However, saturation point was achieved using the six cases.

Characteristics of the chosen samples for the final phase study are both similar and contrasting. They are similar because they all fit with the criteria of micro retailers, but could be contrasting as they may not deal with similar product lines. Nevertheless, '*extreme or deviant cases provide interesting contrasts with other cases, thereby allowing for comparability across those cases*' (Teddlie and Yu, 2007, p.81).

5.8.5 Data Collection in Case Study

As noted by Yin (2014), case study allows the researcher to collect evidence using a range of data collection methods which will assist the researcher to triangulate the evidence, enhancing construct validity. The range of data collection methods under the case study approach, with their 'strengths' and 'weaknesses', is illustrated in Table 5.4. Semi-structured interview as the main data collection method alongside participant observation, was used as the data collection method for the final phase study. However, the documents, website, and artefacts modes of data collection were not used, as they were not available in the studied MBs.

5.8.5.1 Semi-Structured Interview for Case Study

Interviewing is '*a respect for and curiosity about what people say, and a systematic effort to really hear and understand what people tell you*' (Rubin and Rubin, 1995, p.17). The semi-structured interview method, which is the most common way of collecting data in qualitative research (Alvesson and Deetz, 2000), was used as the primary means of data collection for the final phase study under the case study method. This method allows exploration of complex phenomena like RL (Barriball and While, 1994). As noted by Yin (2003), semi-structured interviews are a critical source of data gathering for case studies.

Source of Evidence	Strengths	Weaknesses
Documentation	• Stable - can be reviewed repeatedly • Unobtrusive - not created as the result of the case study • Specific - can contain the exact names references, and details of an event • Broad - can cover a long span of time, many events, and many settings	• Retrievability - can be difficult to find • Biased selectivity, if collection is incomplete • Reporting bias - reflects (unknown) bias of any given document's author • Access - may be deliberately withheld
Archival Records	• [Same as those of documentation] • Precise and usually quantitative	• [Same as those for documentation] • Accessibility due to privacy reasons
Interviews	• Targeted - focuses directly on case study topics • Insightful - provides explanation as well as personal views (e.g., perceptions, attitudes, and meanings)	• Bias due to poorly articulated questions • Response /bias • Inaccuracies due to poor recall • Reflexivity -interviewee gives what interviewer wants to hear
Direct Observation	• Immediacy - covers action in real time • Contextual - can cover the case's context	• Time-consuming • Selectivity - broad coverage difficult without a team of observers • Reflexivity - actions may proceed differently because they are being observed • Cost - hours needed by human observers
Participant Observation	• [Same as above for direct observations] • Insightful into interpersonal behaviour and motives	• [Same as above for direct observation] • Bias due to participant-observer's manipulation of events
Physical artefacts	• Insightful into cultural features • Insightful into technical operations	• Selectivity • Availability

Table 5.4 Six Sources of Evidence with their Strengths and Weaknesses (Yin, 2014, p.106)

Besides, semi-structured interviewing has become a common way of extracting information in the study of RL (Bernon and Cullen, 2007; Sonya Hsu, Alexander and Zhu, 2009; Genchev, Richey & Gabler, 2011; Cullen et al., 2013; Venkatesh et al., 2015).

There are both similarities and differences in the way semi-structured interviews are interpreted and conducted for both the first and the final phase studies. Hence, the description of what constitutes the semi-structured interview and how it can be conducted is explained in Section 5.7 of this chapter. The only difference is that the semi-structured interview was conducted with 15 interviewees in the first phase study, while the interview was conducted in an in-depth manner with six owner/managers of the six cases for the final phase study.

Unit of analysis is the basis to understand the interviewee for the semi-structured interview. The unit of analysis in this study is the UK Micro Retailers and their RL process (Yin, 2009). Hence, the owner/manager, the staff members, and all those external people who may be involved in the process of RL were intended to be interviewed. The owner/managers were the priority as main respondents; however, their consent was needed before interviewing others involved in their businesses. The limited number of employees, which is the nature of MBs, did not allow the conducting of enough interviews. The owner/managers of two firms allowed their staff to be interviewed, while others were hesitant to give their consent. Hence, to maintain similar protocol, interviews were conducted with the owner/managers only. The saturation point was achieved using the interviews and participant observation in the six cases (Mason, 2010). Hence, there was no requirement to find more interviewees or more cases for further interviewing.

As noted by Gummesson (2000), a researcher is required to devote a significant amount of time to collecting basic evidence if they do not have a pre-understanding, and this preunderstanding may come from the related understanding of theories, models, and concepts or from a precise understanding of the state of the social constructs and its forms. In this instance, the questions to be used in this interview for the final phase study were not only guided by the literature reviews and theoretical foundations, but also guided by the themes (presented in Appendix C) collected from the first phase research. Besides, comparatively speaking, both the depth and breadth of the interview were larger for the final phase study under the case study approach than for the first phase study. More relevant questions were added to the semi-structured interview for the final phase study, so that a broad investigation in an in-depth manner would be possible.

Gordon (1975) notes that the wording and arrangement of all the questions in the interview should be consistent so that any variations in the answers are due to the variations in the respondents' view, and not because of the types of questions asked. Consequently, in such interview types, validity and reliability may not depend on the constant use of the same wordings in each question, but may depend upon how the meaning associated with those words is conveyed (Denzin, 1989). As every respondent may not have the same understanding from the same word and vice versa (Treece and Treece, 1986). In this instance, rather than providing a structured questionnaire format, a set of questions accompanied with themes, concepts, words and phrases, as an interview guide, was used (Reuter et al., 2010). The interview guide for the final phase study is presented in Appendix E. Additionally, other documents that may help to provide consistency in the interviews were carried during interviewing (presented in Appendix F). These documents can give an impression of a controlled semi-structured interview. However, as noted by Bayliss et al. (2003), such additional measures can be used to explore the meaning of what the researcher intends to get out of the respondents.

A face-to-face interview which would capture visual cues and small utterances was used (Stephens, 2007, p.9). Again, to explore this complex and under-researched phenomenon, 'prompting' and 'probing' during interviews were made (Stephens, 2007, p.4). However, to avoid bias, over intervention during the interview was avoided (Charmaz, 2006). Interviews did not last any longer than an hour, which helped keep the attention of the interviewees (Hansen, 2006), which has again allowed collection of the necessary data maintaining the systematic protocol.

The interview recordings were made using audio recording equipment (DiCicco-Bloom and Crabtree, 2006). During the interview, memos and notes were taken and these were later used in the analysis process. The recording process and interview technique were kept the same for all interviews to ensure construct validity. A number of visits were made to the respondents prior to the interviews in order to establish a rapport and build trust. This measure enabled the acquisition of answers to the research questions in a more effective manner (DiCicco-Bloom and Crabtree, 2006).

5.8.5.2 Participant Observation

The final phase study used the semi-structured interview as the main data collection method, but the researcher also took the role of participant observer as well, which helped in the triangulated data analyses.

Observation can be defined as '*the systematic description of events, behaviours, and artefacts in the social setting chosen for study*' (Marshall and Rossman, 1989, p.79). Gill and Johnson (2002, cited in Saunders, Lewis and Thornhill, 2009) note that the observers' role can be of four various types, among which the participant observer role was taken for this research. Participant observation can be defined as *'the process of learning through exposure to or involvement in the day-to-day or routine activities of participants in the researcher setting*' (Schensul, Schensul and LeCompte, 1999, p.91).

The participant observation role was adopted for this research because, apart from engaging in the day to day activities, this role allows the gathering of information and involved '*active looking, improving memory, informal interviewing, writing detailed field notes*' (DeWalt and DeWalt, 2002, p.vii). In due course, data collection using this process involved three phases: participation, observation, and interrogation (Stocking, 1983). This method enabled annotation of nonverbal communication and grasps the moods and feelings of the respondents as well (Schmuck, 2006). Moreover, as noted by Marshall and Rossman (1995), this approach allowed verification of the meanings of language the respondents used during the interview period, and also highlighted actions that they were either unable or unwilling to share, due to many reasons. Further, this approach enabled the to compare and contrast the situations described by the respondents during interviews (Marshall and Rossman, 1995). To achieve this objective, the interview was conducted before the participant observation.

Participant observation provided the opportunity to be a more ethical researcher by being face-to-face with the respondents, revealing the identity of the researcher (Kawulich, 2005). This also gave the chance to explain to the respondents the aims and objectives of the research and how the data will be used. It has been noted that:

> '…ethics of participant observation should be addressed in relation to the sensitivity of the research topic, the vulnerability of the researched individuals, and the plasticity of field membership roles' (Li, 2008, p.10).

However, the sensitivity of the research may not always be found in the research topic. The research on RL, on the whole, may look like general business management research, but there were some aspects which were found to be sensitive among the participants. For instance, 'how much of the goods remain unsold or excess?' and, 'how much of the goods are brought back by the customers?' were found to be sensitive questions among some of the respondents, as they were hesitant to answer these questions which may have revealed them to be incompetent in some way. Hence, gaining trust and rapport was an important factor to consider before getting the answers to these questions (Bernard, 1994). Rapport with the respondents was not built in the first meeting, but rather over time, after becoming more familiar with the respondents (Kawulich, 2005). Several short and informal meetings before the interview and observation were conducted to gain trust and build rapport. In the course of maintaining trust and rapport with the respondents, it was important not to lose sight. Hence, a vigilant approach in getting a good grip on the aims and objectives of the research was taken (Iacono, Brown and Holtham, 2009).

Observation was made over a relatively short period (a week for each businesses), and a focused approach was used through which relevant data could be collected without wasting any time (Jorgensen, 1989). The aims and objectives of the research and research questions guided the observation. However, a semi-structured approach to observation was deemed appropriate, which aligns with the semi-structured interview. Semi-structured observation was also deemed appropriate because this comes between the structured observation, as noted by Angrosino and DePerez (2000), and a more open structured observation, as noted by Merriam (1998). Not being too structured has allowed some unexpected data to come up that has aided in the development of a new emerging theme (Merriam, 1998).

In order to remember the issues that were observed, recording of the observation data for each business was made on the same day for the seven consecutive days (Saunders, Lewis and Thornhill, 2009). Furthermore, as suggested by Kawulich (2005), to make data recording more efficient and effective, notes were taken and memos were written. These notes and memos were reviewed to look for repeated configurations and core themes in the participants' actions. These reflections were then reported (Kawulich, 2005). Overall, to ensure validity and reliability, a continual comparative method was used where the actions and responses of participants were compared against each other (Barnes, 1996; Davies and Crane, 2010).

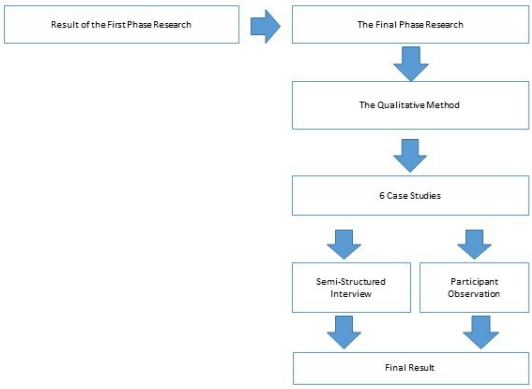

Figure 5.3 Final Phase Research Design

Ethical consideration was made by informing the participants about the research purpose, and reassuring them about the confidential use of information (Sampaio, Thomas, and Font, 2012). An ethical approval form was secured from the faculty office, which was presented to the participants. All the interviews and site visits were conducted between September 2015 and February 2016. Figure 5.3 gives an overview of the final phase research, as per the discussion made in the above sections.

5.9 Data Analysis

'*Data analysis is about moving from chaos to order, and from order to chaos*' (Blaxter, Hughes and Tight, 2010, p.213). Data needs to be put in order to make sense of it, but what sense to make of it may depend upon what perspective is used, which again needs careful consideration. The data for this study is to be analysed separately for the first and the final phase study, which will be explained below.

5.9.1 Data Analysis for the Initial Phase Research

Before analysing the data for the final phase study, the data collected for the first phase research using the qualitative semi-structured interview and quantitative survey were to be analysed, as the outcome of the first phase study guides the final phase study.

The first phase research collected data using both qualitative and quantitative data collection methods, under the mixed methods approach. It is important to understand what the data is conveying, as qualitative data may require a very diverse way of analyses (Strauss and Corbin, 2008), while quantitative data may demand a specific technique to be deployed for a specific outcome (Creswell, 2013). Figure 5.4 presents the data analysis framework for the first phase study, which will be explained in the sections below.

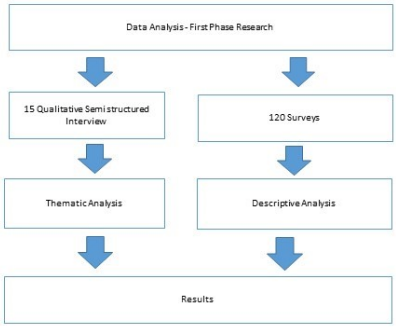

Figure 5.4 Data Analysis Process for First Phase Research

5.9.1.1 Qualitative Semi-Structured Interview Analysis

Various researchers advocate different methods of qualitative data analysis, which can be used interchangeably (for example Cassell and Symon, 2004; Srivastava and Hopwood, 2009; Miles, Huberman and Saldana, 2013; Silverman, 2016). For analysing the qualitative data, this study uses the thematic analysis method prescribed by Braun and Clarke (2006). Thematic analysis is appropriate for analysing the qualitative data for this research because this allows themes to be created from understanding those patterns which are significant in explaining the phenomenon, that are attached with the question asked (Daly, Kellehear and Gliksman, 1997). As per this method, data can be analysed following the comprehensive and systematic stages such as data

familiarisation, generating initial codes, search for themes, reviewing themes, naming and explaining themes, and producing the report (Braun and Clarke, 2006).

Data familiarisation: Qualitative data collected via semi-structured interview for the phase one research was carefully read and re-read several times. To achieve thorough familiarization with the data, notes were taken and ideas were marked which could be used for the coding process. This approach helped to familiarise the researcher with the collected data.

Construction of initial codes: The second stage involved the construction of initial codes. The codes are '*the most basic segment, elements, raw data or information that can be assessed in a meaningful way regarding a phenomenon*' (Boyatzis, 1998, p.63). Essentially, codes are connotational or underlying features that the researcher is interested in (Braun and Clarke, 2006). Consequently, it was important to code carefully because '*the excellence of research rests in large part on the excellence of coding*' (Strauss ,1987 p 27).

Both grounded coding and 'a priori' coding methods were used for analysing the data (Salanda, 2015). Grounded coding allows the codes to emerge from the document themselves, and priori coding requires the researcher to apply the chosen theoretical frameworks to analyse the documents (Salanda, 2015). This procedure enables the collection of codes that not only settle with the existing theory, but which can be used either to question or re-evaluate the theory. This process again adheres with the abductive reasoning method (as the combination of inductive and deductive). Codes are presented as '*words or short phrases that symbolically assign a summative, salient, essence-capturing and/or evocative attribute*' (Saldana, 2013, p.3).

As highlighted by Braun and Clarke (2006), to avoid poor coding, a mindful effort should be made to avoid categorising and identifying the code as the typical responses made for the questions. However, in some – but not all – cases, the code as the typical responses made for the questions was appropriate to use, as this answered the research question.

During the coding process, the data was read repeatedly to avoid missing the key codes and to avoid repetition of codes. This stage also helped in merging similar codes whenever appropriate. For this study, the researcher identified a large number of codes; however, this can be understood as the result of the careful effort made by the researcher, which has allowed the codes to emerge '*for as many potential themes/patterns as possible*' (Braun and Clarke, 2006, p.19). This has

allowed the researcher to capture all excerpts that could be of importance in the analysis stage (Braun and Clark, 2006).

Search for Themes: At the third stage, the identified codes are separated into various categories to identify the themes most pertinent to answer the research questions. Categorically, '*some initial codes may go on to form main themes, whereas others may form sub-themes and others still may be discarded*' (Braun and Clarke, 2006, p.20). Themes that may hold a similar essence are categorised as subthemes, and combination of the subthemes helps to identify the key/main themes. Themes can be represented as an answer or meaning from the codes extracted from the data that have a relation with the research questions. Themes arose several times across the data set, but a higher occurrence does not necessarily mean that the theme holds more weight in terms of understanding the data. The principal researcher's judgement, as the key means, was used in defining which themes are more critical, consequently presenting an understanding of the 'big picture' (Braun and Clarke, 2006).

Reviewing themes: This phase, as stage four, allows the researcher to finally examine if the identified themes have any relation to the research questions or to the proposed theory. This also allows the researcher to find a 'clear and identifiable' difference between themes (Braun and Clarke, 2006). This is the stage where the identified themes are revised, where some existing themes are dissolved into each other, and other themes are reduced into smaller elements, finally deciding on the final themes.

Naming and explaining themes: The fifth stage further refines the themes by analysing the corresponding data (Braun and Clarke, 2006). This involves '*identifying the essence of what each theme is about*' and '*what data aspect each theme captures*' (Braun and Clarke, 2006, p.22). The data and excerpts for each theme are revisited to organise them into a narrative that is coherent and consistent with the theme (*ibid.*). The core aim of this stage is to present and critically examine the particularity of the results within each theme, relating to the research questions.

Reporting: Consequently, this stage of the thematic analysis can be stated as the findings section (Braun and Clarke, 2006), where the data collected from each interviewee needs reporting, as the themes analysed through the thematic analysis method need to be reported using the 'chain of evidence' (Yin, 1981), i.e., using the relevant quotes and data retrieved from the data collection methods. Furthermore, the presentation of data, in terms of analyses and reporting, may have an

important role to play in ensuring the validity and reliability and this is maintained by expressing the research in an effective manner (Seuring and Müller, 2008). Consequently, the qualitative data, for the first phase research, is reported as the chain of evidence in terms of relevant quotes throughout the findings section in Chapter 6.

5.9.1.2 Quantitative Survey Data Analysis

Apart from the qualitative semi-structured interview, the first phase research for this study also collected quantitative data using the survey method, which needs to be analysed. Quantitative data can be analysed under various levels (Blaxter, Hughes and Tight, 2010). However, it is not in the nature and scope of the first phase research to go through various levels for analysing these data.

However, this phase will use the descriptive analysis method to analyse these data, as:

> 'Descriptive statistics are used to describe the basic features of the data in a study. They provide simple summaries about the sample and the measures. Together with simple graphics analysis, they form the basis of virtually every quantitative analysis of data. With descriptive statistics, you are simply describing what is, what the data shows.' (Trochim and Donnelly, 2001 p.1)

The nature of the questions for the first phase research is descriptive rather than inferential, so descriptive analysis seems appropriate for the first phase research (Creswell, 2009). Besides, descriptive statistics is used to obtain a preliminary understanding of the phenomenon, for instance '*primarily to describe what is going on or what exists*' (Trochim and Donnelly, 2001, p.1) which again suits the requirement of the first phase research.

Saunders, Lewis and Thornhill (2009) concede that descriptive statistics can be used to define the variables emphasising two facets: the central tendency or the dispersion.

Saunders, Lewis and Thornhill (2009) also explain that the central tendency can be represented by 'mode', 'median' and 'mean'. The value that arises the most can be represented by mode, the middle value can be denoted by median, and the average of all the values can be denoted by mean. The dispersion facet looks at the way the data are dispersed in the 'central tendency'. Consequently, this facet represents the difference between the values through the identification and analysis of 'range', 'inter-quartile range', 'lower quartile', 'upper quartiles', percentiles and deciles. The facet of dispersion can be used for defining and comparing the degree of difference of the value from the mean (Saunders, Lewis and Thornhill, 2009). Consequently, these

differences can be represented by ‘standard deviation’, ‘coefficient of variation’ and ‘index numbers’. Since this research uses a simple descriptive analysis technique, it uses mean value to explain the situation of the studied components.

Quantitative survey data for the first phase study was analysed using the descriptive analysis technique which was again done using SPSS as the statistical analysis package (Green and Salkind, 2010).

5.9.2 Data Analysis for the Final Phase Research

Data were collected using the semi-structured interview and participant observation methods under the case study approach, for the final phase research. Qualitative data requires a very diverse way of analysis (Strauss and Corbin, 2008). Moreover, analysing data collected using the case study approach was not an easy task, as the data collected via a case study research method may differ from the data collected using any other form of qualitative research. Multiple sources of data can be used for a case study, and further, as there were multiple cases (six for this study) there were multiple data for each case, which has brought further complication into the analysis process. Furthermore, in a multiple case study approach, the outcome of each case must be compared and contrasted with the other cases, capturing the essence of the case study research method (Yin, 2003).

The two research questions for the final phase study, which are the outcomes for the two theoretical perspectives of Resource Based View and Transaction Cost Economics, needed to go hand in hand during analysis of the data for the final phase study. Due to the immature subject area, the final phase research did not used the deductive way of analysing the data, even though the research questions are based on theoretical foundations. However, even if the theory seems fitting with the research questions, due to the topic being relatively under-researched, an inductive approach on its own also did not fit. This means the main aim of this analysis is not to come up with a brand-new theory; however, the further understanding, development or the modification of the existing theory, as per the RL situation in the MB context, is not denied. Hence, an abductive reasoning which uses the inductive and deductive reasoning back and forth was deemed appropriate.

Case analysis followed by the cross-case analysis is the fundamental part of case study analysis (Eisenhardt, 1989). Data collected using semi-structured interviews and participant observation

(Yin, 2014) for each case needs to be analysed before making the cross-case comparison. Hence, careful consideration is required to make the within-case analysis, which could be further used for the cross-case analysis.

Various ways of qualitative data analysis method have been prescribed by a number of authors, such as Cassell and Symon (2004), Srivastava and Hopwood (2009), Miles, Huberman and Saldana (2013) and Silverman (2016). The within-case analysis for this study was made using six comprehensive stages of thematic analysis prescribed by Braun and Clarke (2006), which was an appropriate way of analysing the data at this stage. The outcomes of the themes (presented in Appendix H) for each case were then used for the cross-case comparison.

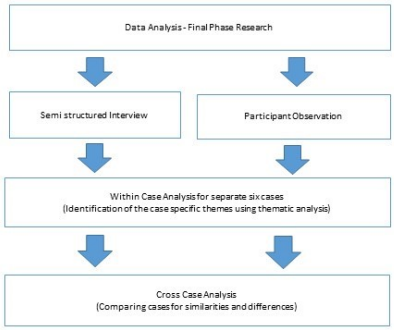

Figure 5.5 Data Analysis Process for Final Phase Research

To gain thorough familiarisation with the data, the data collected from both the interview and daily observation journal for each case were carefully read and re-read several times. Notes were taken, and ideas were marked, which could again be used for the coding process. Accordingly, the thematic analysis as prescribed by Braun and Clarke (2006), as explained in Section 5.9.1 of this chapter, was used to come up with the themes (see Appendix H) for each case. As shown in Appendix H, the codes for this research are presented as '*words or short phrases that symbolically assign a summative, salient, essence-capturing and/or evocative attribute*' for each case (Saldana, 2013, p.3). As presented in Appendix H, the researcher identified a large number

of codes for the present study, although this can be attributed to the significant effort made by the researcher which enabled the codes to emerge. This has allowed the researcher to capture all excerpts that could be of importance at the analysis stage as in the final stage of the thematic analysis, which is considered as the findings section, data from each case were analysed as within-case analysis for each case separately (Braun and Clarke, 2006). Figure 5.5 presents the data analysis stages for the final phase study. Reporting may be the last stage of the thematic analysis, however, as per case study reporting, there was the need for two different stages of reporting: separate and initial reporting for each individual case as within-case analysis reporting, consequently leading to comparative reporting for all the cases, as cross-case reporting. The themes (presented in Appendix H) analysed through the thematic analysis method were reported using the 'chain of evidence' (Yin, 1981), i.e., using the relevant quotes and data, retrieved from the data collection. The presentation of data, in terms of analyses and reporting, have an important role to play in ensuring the validity and reliability of the research. This has been maintained by expressing the research in an effective manner (Seuring and Müller, 2008) with the use of appendices, self-explanatory tables and figures for both within-case and cross-case analysis, which will be illustrated and explained in Chapter 7.

5.10 Summary

This chapter has explained the key aims and objectives for both the first and the final phase research, with the postulation of research questions including the research methods and data analysis methods. Given the under-researched and complex nature of the research, a pragmatic paradigm which fits with the mixed methods approach was deemed to be the most appropriate philosophical and methodological foundation for this research. Given the nature of the study, a multi-phase mixed method approach was utilised, which is an advanced way of conducting research in order to answer the research question in the best possible way.

The initial phase study's interview and survey has assisted in guiding the final phase, ensuring the content validity for the final phase study. The interviewees for both the first and the final phase study were provided with the opportunity to 'confirm' or 'challenge' their content, as well as to provide explanation when required. This process was used to ensure 'interpretative validity' (Sampaio et al., 2012). Nevertheless, '*the qualitative, yet strong, content validity*' (Dowlatshahi, 2005, p.3465) was established by grounding the final phase study questions on the literature

review; the current state of theory in RL, and the first phase study results. Academics and practitioners were asked to check the survey questions and the interview and observation guidelines for content validity for both phases of the study. Overall, to ensure validity and reliability, a continual comparative method was used (Barnes, 1996), where the actions and responses of participants were compared against each other (Davies and Crane, 2010). Ethical consideration was made by informing the participants about the research purpose and informing them about the confidential use of the information for both phases of the study (Sampaio et al., 2012). An ethical approval form was secured from the faculty office, which was presented to the participants. All the interviews and the site visits were conducted between September 2015 and February 2016.The results for the first phase study are presented in Chapter 6, and the results for the final phase study are presented in Chapter 7 of this thesis.

Chapter 6: The First Phase Research Analysis

6.1 Introduction

The final phase research aim was to explore the capabilities and costs of RL in the MB context which was conducted after the first phase research. The aim of the first phase research was to have a preliminary understanding of the various key aspects of RL that were likely to affect capabilities and costs in MBs. It was believed that studying these aspects would help in designing the data collection for the final phase research. Hence, the key issues that were explored in the first phase research included volume of goods accumulation in the reverse channel; record keeping of these goods; choice of disposal options; time required to extract value from these goods; and motivation to deal with these goods.

The main aim of this chapter is to analyse the results of the first phase study. The first phase study used mixed method approach to collect the data. The qualitative data was derived through semi-structured interviews used the thematic data analysis methods to analyse the data (Braun and Clarke, 2006). The first phase research of this study also collected quantitative data through survey methods, which was analysed using the 'descriptive' data analysis method (Trochim and Donnelly, 2001). As for the mixed methods approach (Johnson and Onwuegbuzie, 2004), the findings and analysis derived from both qualitative and quantitative data are presented, explained, and compared in the 'findings' section.

6.2 Key Findings

The findings show that the studied businesses are involved in activities related to RL. The findings also show that there are both similarities and differences between the RL issues concerning the firms interviewed and surveyed, which is informed by the MB characteristics based on the MB literature.

The interviewed and surveyed firms' diverse characteristics informed how they address the various aspects concerning RL. One of the central aspects concerning RL is the way firms deal with the products that accumulate in the reverse channel. Hence, the various product categories of the firms surveyed and interviewed, as presented in Table 6.1, also informed how their RL activities may be similar or different from each other.

SN	Firms	Number
1	Shoe retail	1
2	Card	1
3	Furniture	4
4	Calendar and Diaries	1
5	Phone Accessories	2
6	Keys/watches/straps/locks	2
7	Aroma Therapy and Spiritual Products	2
8	Pet Retail	5
9	Electrical and Electronic products	7
10	Night Life Art/Product	1
11	Haberdashery& Wool/ Fabrics & Threads	2
12	Camping Products	1
13	Music Retail	5
14	Grocery and Food Retail	6
15	Florist	2
16	Motor Spare Parts	2
17	Jewellery	5
18	Tackle and Bait (fishing related)	4
19	Art Gallery/Shop	2
20	Sports Retail	3
21	Medicine/Herbal/Fitness	2
22	Children's Wear	6
23	Rug Shop	1
24	Home Furnishing and Decoration	3
25	Toys, Comics and Books	6
26	Ink Spot, Cartridge and Computer Accessories	2
27	Household & Miscellaneous	18
28	China Gift Shop	1
29	Gifts Clothing Jewellery and Body Piercing	1
30	Ladies Fashion Clothes	7
31	Bags and Accessories	5
32	Hair/Accessories/Makeup	8
33	Anonymous	2
	Total	120

Table 6.1 Firms Surveyed and Interviewed

6.2.1 Volume of Goods Accumulation in Various Categories

As shown in Table 6.2 and 6.3, goods in the surveyed businesses accumulated in all the categories except the 'legislative take-back' category and 'own initiative take-back' category. This finding also shows that goods do accumulate in the reverse channel of the studied businesses which may have to go through the process of RL. The findings show that the studied businesses are likely to have more goods accumulation in the 'unsold and excess' category, which is in line with the data derived through interview.

Quantifiers	Volume of Goods Accumulation Represented by Quantifiers in Various Categories						
	Respondents view on unsold and excess goods	Goods returned for repair or exchange	Goods returned due to return policy	Damaged, broken & faulty goods	Legislative take-back	Own initiative take-back	Recalled Goods
A lot	24.2%	0.8%	0.8%	1.7%	0%	0%	0%
Moderate Amount	20.8%	0.8%	0%	1.7%	0%	0%	0%
Little	33.3%	11.7%	11.7%	20.8%	0.8%	0.8%	0%
Very Little	12.5%	44.2%	35.8%	41.7%	0%	0.8%	1.7%
Rare	6.7%	29.2%%	34.2%	27.5%	2.5%	3.3%	1.7%
Not at All	2.5%	13.3%	17.5%	6.7%	96.7%	95.0%	96.7%

Table 6.2 Goods Accumulation in Various Categories Represented by Quantifiers

Numeric figures	Volume of goods accumulation represented by numeric figures in various categories						
	Unsold and Excess Goods	Goods returned for repair or exchange	Goods returned due to return policy	Damaged, broken & faulty goods	Legislative take-back	Own initiative take-back	Recalled Goods
0 units	3.3%	16.7%	20%	12.5%	97.5%	96.7%	96.7%
Fewer than 50 units	32.5%	80%	75.8%	80%	.8%	2.5%	2.5
50-499 units	48.3%	2.5%	3.3%	5.8%	.8%	0%	0%
500-999 units	14.2%	0%	0%	0%	.8%	0%	0%
1000 units or more	1.7%	1%	.8%	1.7%	.8%	.8%	.8%

Table 6.3 Goods Accumulation in Various Categories Represented by Numeric Figures

The qualitative interview revealed a number of reasons for the goods accumulating more in the 'unsold and excess' category than in any other category, which relates to their MB. As one of the respondents said: '*our business is small and consequently the sales turnover is small, it is likely for these products to accumulate more in unsold and excess category, than in any other category*'. Suppliers not adhering to their micro size operations was another reason for the goods to accumulate in the 'unsold and excess' category. One of the respondents said: '*they will send us the full box and we need to buy them as it is… they would not sell the loose units from the box, and if they did they would charge more, which we cannot afford*'. Again, these businesses' weak capacity, which was again related to their small size, was another reason for the goods to remain

unsold and excess. One respondent mentioned that '*there is little chance of goods getting damaged or broken if they are high quality branded goods, but it is beyond our capacity to buy these goods*'.

Another respondent pointed to seasonal and occasional reasons, saying that: '*goods are likely to remain unsold till the next season arrives, and there is nothing we could do about it*'.

Respondents also mentioned the long-term effect as one of the reasons for goods piling up. The respondent said: '*goods in this category do not accumulate in a short period of time, but as time passes by they get piled up in large quantities*'. Hence, it can be argued that the studied businesses may have no or small accumulation in the short term, however once their business grows they can then start accumulating goods in larger quantities.

It was also found that the goods do accumulate in the 'damaged and broken' categories due to external forces such as the fault of the transport companies or the fault of the suppliers. For instance, a respondent said: '*sometimes goods arrive damaged which is due to the careless handling of the transport company or the supplier or could even be the supplier's fault*'.

Businesses also revealed that despite their precautionary measures, goods were also likely to get piled up in the 'damaged and broken' category due to the accidental fault of staff members or customers. One of the respondents said: '*we have taken all the care, but goods do get damaged accidently, either due to the fault of the customer, or staff members*'.

Respondents talked about various aspects that would help in lessening the goods accumulation in various categories. One of the respondents talked about learning from previous experience and said: '*I used to have this problem, but my previous experience has made me not repeat this anymore. Now I know the customers' expectations and buy what they may want to buy from us*'. Respondents revealed that due to their limited capacity, expertise, and resources, they tend to use various precautionary measures, so that, as much as possible, the volume of accumulation can be lowered. As one of the respondents said: '*I try everything possible to sell off these goods as soon as possible, so that they do not get piled up in time to avoid possible loss. Unfortunately, they get piled up, even if it is in lower volume*'.

In terms of taking precautionary measures, one of the respondents emphasised prior inspection and said: '*inspecting the goods before accepting the delivery avoids damaged and faulty goods*'.

On a similar note, another respondent emphasised tightening the returns policy, and said: '*not taking anything and everything back which the customers bring back, also helps*'.

Lack of knowledge, or reasons related to their small size, are some of the key reasons why goods do not accumulate in categories such as 'legislative' and 'own initiative take-back'. For instance, one of the respondents pointed out: '*we are small business, we don't need to worry about these categories*'. In terms of knowledge, another respondent said: '*I don't understand why we need to take back used goods*'.

6.2.2 Record Keeping Tendency

Table 6.4 shows that most respondents do not keep records of the goods that accumulate in the reverse channel. Just over 17% said that they sometimes keep records, and the remaining 25% said that they always keep records of these goods. The qualitative interview showed mixed reactions in terms of record keeping, as some said they would keep records, and others said they would not. Respondents provided various reasons for keeping records. For instance, pointing out the small size of the business, one respondent said: '*small business means small volume, so the record keeping is easy*'. Various aspects related to economic gain or economic savings were also

Record keeping tendency	**Respondents' Views of Record Keeping for Goods Accumulated in Different Categories**								
	Unsold and Excess Goods	Goods returned for repair or for exchange	Goods returned due to return policy	Damaged, broken & faulty goods	Legislative take-back	Own initiative take-back	Recalled Goods	Average	Average excluding last three categories
Always	21.7 %	27.5%	25.8%	25.0%	3.3%	3.3%	2.5%	15.59%	25%
Sometimes	9.2 %	20.0%	18.3%	20.8%	2.5%	0.8%	0%	10.23%	17.08%
Never	69.2%	52.5%	55.8%	54.2%	94.2%	95.8%	97.5%	73.89%	57.93%
Total	100%	100%	100%	100%	100%	100%	100%	100%	

Table 6.4 Firms' Record Keeping Tendency for Goods Accumulation

attached to record keeping. For instance, one respondent said: '*record keeping helps track the suppliers of the faulty goods as well as calculate the cost of managing these*'. Another respondent on a similar matter said: '*we keep records of these goods so that they can be sent back to the suppliers for compensation*'. Some key reasons for not keeping records were due to the task being 'unimportant', 'time consuming', and 'low volume accumulation'. For instance, one of the respondents, for the goods in the 'customer returned' category said: '*I don't keep records of the*

goods that are returned, as they are so little, and it doesn't make much difference to our profitability'.

6.2.3 Disposal Options

Appendix D shows the quantitative data that demonstrates various disposal options chosen by the studied firms. Nearly 70% of the respondents studied chose 'Yes' for the landfilling options, which clearly shows the effect these businesses may have both economically and environmentally. During the interview, however, they said that this is their last possible option. One of the respondents said: '*I look at every possible option to sell off these goods, and only throw them away when they remain unsold for long time, as I need to make space for new goods*'.

Another significant number of respondents – 50% – said that they would send these goods back to the suppliers. Interview data, however, also revealed that in most cases the suppliers credit these goods for them, but rarely physically take these goods back, which was an added burden for these businesses. One respondent said: '*the suppliers not only leave these goods with us but ask us to manage these as well*'. Another respondent gave an economic reason for throwing away the damaged goods and said: '*we prefer throwing away these goods if they already have been compensated by the suppliers, as we need space for new goods*'.

Over 50% of the respondents said they would resale as new, and 29.8% and 31.05% said they would repackage and sell or directly reuse, respectively. Quantitative data revealed that there were very few who would use the option of selling via outlet, sell to broker, recyclers, or dismantlers or even donate to charity. Higher levels of investment and expertise are required for remanufacturing and recycling than for repairing or refurbishing. Hence, as expected, due to their limited resources and expertise, the studied businesses were not likely to remanufacture or recycle. One of the respondents mentioned the size of the business as the problem in doing so, saying: '*recycling and remanufacturing require higher cost and expertise which is not in our reach*'. However, a significant number of them would repair or refurbish, because it required less expertise and cost – 41.03% and 35.2%, respectively, said they would repair or refurbish. The qualitative interview revealed that some businesses would do this for environmental reasons, as one of the respondents said: '*managing these goods sensibly has a good impact on the environment*'. Overall, it has been found that the studied businesses used few disposal options. The choice of these options shows that the respondents select the options they have the

knowledge of, that are economically sound, and are readily available. Discussing sending these goods back to the suppliers, one respondent said: '*we send these back to the suppliers as suppliers compensate these for us, and while doing so, there is no extra cost attached to it*'.

Various reasons were found in the studied businesses for not being able to fully utilise the disposal options. Overall, not having any idea or knowledge about the available disposal options, suppliers not being co-operative, higher costs and expertise involved, time constraints, and giving less priority to this task are some of the major reasons given for not being able to fully utilise the available options. For instance, one of the respondents said: '*it all depends upon if we know about it, how much it would cost, and how important it is related to other tasks at hand*'.

6.2.4 Time Required

Table 6.5 shows the length of time the studied businesses may need to extract value, manage or dispose of these goods in various categories. Table 6.5 shows that various types of goods may need different timescales to extract value, manage or dispose of goods. However, it can be concluded that goods in the 'unsold and excess' category may need more time to get processed for value extraction than any other goods category, for the studied businesses. A significant number of respondents, i.e., 53.4%, said that it would take more than a year, and the remaining 46.6% of respondents said it would take less than a year to manage these goods. Qualitative interviews revealed various reasons for either slower or quicker value extraction, which are themed in Appendix C as 'nature of the goods', 'technical reasons' and the 'small size of the businesses', which were some of the themes that came up during analysis as reasons for slower management of these goods. One of the respondents said:

> 'seasonal and occasional goods may need another year or may be even longer than a year to sell. It becomes more difficult to sell once it gets obsolete or outdated, as customers do not want to buy the same goods they have being seeing for years'.

Emphasising the size of the business, another respondent said: '*we do not have time or money to use ways to sell off these goods as quick as possible. In addition, suppliers do not respond quickly, as we are small business, you see*'.

Time	% of respondents choosing each timescale				Average mean
	Unsold and excess goods	Goods returned for repair or exchange	Goods returned due to returns policy	Damaged, broken and faulty goods	
1 day	5.2%	11.2%	10.6%	7.0%	8.5
Less than a week	6.0%	30.2%	20.4%	20.0%	19.15
Less than 1 month	7.8%	18.1%	15.0%	26.1%	16.73
Less than 6 Months	10.3%	14.7%	17.7%	19.1%	15.45
Less than a year	17.2%	10.3%	11.5%	11.3%	41.83
More than a year	53.4%	15.5%	24.8%	16.5%	27.55

Table 6.5 Time Required to Manage Goods

It may take long to manage these goods. However, as themed in Appendix C, it was also found that they may try to manage these goods as quickly as possible for economic reasons, which is related to the nature of them being small and resource constrained. For instance, a respondent said: '*repairing and returning in time keeps my customer happy, which is worth doing for making money*'.

In other cases, it was found that it will never be easy to predict time, and time was not predictable for these businesses; one of the respondents said: '*these may sell within few days, or few weeks, or even may take months, you'll never know*'.

Analysis made in this section has revealed that the time required was varied and was not easily predictable. Moreover, qualitative interviews revealed that respondents speculate the time required, as they do not know the time precisely. It was found that businesses may try to manage these goods quickly if they think there is economic gain in doing so. Businesses may also need longer time to manage these goods if they have no options left. It was also found that if it takes too long to manage, it is likely that these businesses may simply throw away these goods, resulting in unfavourable conditions, both economically and environmentally.

6.2.5 Motivating Factors

Table 6.6 presents quantitative data that shows the studied businesses' motivational factors for managing these goods. Table 6.6 shows that a significant number of respondents are motivated to deal with these goods because it brings customer satisfaction, improves their profitability, helps reduce their cost, and it helps them to differentiate themselves from their competitors and make them more competitive. All these motivations show that they relate to either direct or indirect economic gains, which can be considered as the drivers for reversing the logistics in the studied businesses.

Motivating Factors	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Dealing with these goods brings customer satisfaction	31.4%	57.6%	8.5%	2.5%	0%
Dealing with these goods improves our profitability	22.9%	63.9%	9.3%	4.2%	0%
Dealing with these goods help reduces our cost	13.6%	59.3%	21.2%	5.9%	0%
Dealing with these goods maintain the ecology and results in better environment	9.3%	43.2%	39.0%	8.5%	0%
Dealing with these goods help to show that we are socially responsible	8.5%	32.2%	51.7%	7.6%	0%
Dealing with these goods help to preserve the natural resources that are finite	5.9%	32.2%	52.5%	9.3%	0%
We deal with these goods because it brings improvement in the logistics	3.4%	24.6%	63.6%	7.6%	0.8%
Dealing with these goods helps us to differentiate ourselves from our competitors and make us more competitive	8.5%	50.8%	33.9%	6.8%	0%
We deal with these goods because of the landfill costs	5.1%	32.5%	47.0%	15.4%	0%
We deal with these goods because in some cases we are bound to do so by law	2.6%	18.8%	49.6%	25.6%	3.4%
We do not know how we should deal or react with these goods	1.0%	7.9%	17.8%	57.4%	15.8%

Table 6.6 Motivating Factors for Managing Goods

There are, however, a large number of respondents who believe that dealing with these goods maintains ecology and results in a better environment. These results show that respondents are motivated to manage these goods due to both economic and environmental reasons. Qualitative interview revealed that respondents were more inclined towards economic benefit and there were a few who did this for environmental reasons. One of the respondents said: '*doing this helps cut our cost, brings profit and is also good for the environment*'.

6.3 Key Learning for the Next Phase of the Research

This first phase research has studied some fundamental aspects concerning RL in the MB context. The findings and analysis of the qualitative and quantitative data have provided an initial picture of RL aspects concerning MBS. The similarities and difference between the findings and the existing literature will be elucidated in the following paragraphs.

6.3.1 Volume of Goods Accumulation

Literature reveals that goods in the reverse channel can accumulate in various categories such as the 'unsold and excess' category, 'customer return' category (Bernon and Cullen, 2007), 'damaged, broken and faulty' category (Bernon and Cullen, 2007), 'legislative' category (Gui et al., 2015), 'own initiative' category (Kannan, 2009), and 'recalled goods' category (Sharma, Garg and Agarwal, 2014). Goods accumulate more in the 'unsold and excess' category, and this was also the case for the studied MBs, even though there are levels of goods accumulation in the 'customer return' or 'damaged and broken' category. However, as found in the literature, these businesses were less likely to have goods accumulation in the 'legislative' and 'own initiative' take-back category due to their limited knowledge on these categories. Businesses were found using precautionary measures like 'gatekeeping' and 'avoidance' (Rogers et.al., 2002) to avoid or decrease the accumulation. MBs are resource constrained (Storey and Greene, 2010); hence, to save their resources, the studied businesses were found using precautionary measures to lower the volume of these goods, as businesses revealed that they understand the consequences of these accumulations. Precautionary measures may bring economic savings; however, this may indirectly bring adverse economic conditions in the business in the long run. For example, providing a liberal returns policy is a way to satisfy and retain customers (Smith 2005) but may lead to goods accumulation in the reverse channel. The initial study found that MBs have used precautionary measures which may do well in the short term. These businesses, however, are in danger of losing customers in long run if customers do not get the desired returns policy from these businesses. Small businesses already have small market share (Sok, O'Cass and Sok, 2013) and this situation may have the potential to escalate the smaller market share situation of these businesses even further. Literature reveals that smaller business are knowledge constrained in terms of environmental consciousness (Petts et al., 1999), which is in line with the findings. MBs were found to have inadequate knowledge on both 'legislative' and 'own initiative'

take-back categories, which was related to environmental consciousness (Herren and Hadley, 2010). The ineffective implementation of the environment-related law (Nash and Bosso, 2013) could also be the reason for these businesses lacking knowledge on the legislation related to taking back goods. Again, the effectiveness of the environmental law may also be more effective if they are formulated considering the structural differences of these businesses (Perrini, Russo and Tencati, 2007).

Literature reveals that it is more practical for businesses with higher levels of goods accumulation to invest in RL-related activities (Johnson and Lenders, 1997). The literature also reveals that businesses that experience higher return rates are more likely to gain expertise related to RL (Johnson, 1998). The findings show that MBs, individually, may have a small individual effect, but are likely to make a large cumulative effect (Williamson and Lynch-Wood, 2006). Hence, even if these goods are of small volume and create less of an adverse impact in the micro perspective, this may create a huge impact in the macro perspective, both economically and environmentally. RL is a costly activity (Mukhopadhaya and Setoputro, 2006), hence businesses, like MBs with limited capability and resources, are more in need of developing such expertise. Moreover, the confirmation of the accumulated goods, even if they are low in volume, has provided the strong possibility for further exploration of this phenomenon in these businesses.

6.3.2 Record Keeping Tendency

Existing research shows that businesses are less likely to keep track of the goods that accumulate in the reverse channel, as they still do not consider this to be an important aspect related to their business (Cullen et al., 2013). This aligns with the first phase research result, as MBs were found to be less likely to keep track of the goods that accumulate in the reverse channel. It can also be concluded that due to their informal way of doing things (Zach and Munkvold, 2012) they do not keep records of this goods and prefer to work on tacit knowledge gained from previous experiences (Pérez-Luño, Saparito and Gopalakrishnan, 2016). Hence, it can be argued that the volume of goods in the different categories mentioned in Table 6.2 and 6.3 may be based on estimation and not based on the actual figure, as most of the companies studied in this research do not keep track of these goods. As revealed in the small business literature, size of the business, economic hardship, and giving less importance to the strategic task could be some of the reasons for not keeping records of the goods accumulated in the reverse channel by the studied MBs

(Zach and Munkvold, 2012). In this regard, the cost calculation for managing, extracting value or proper disposal of the goods will be equally difficult in these businesses (Rogers and Tibben-Lembke, 2001). Businesses should keep track of these goods even if they are in small volumes, as these records may show the actual effect these products bring to their businesses, both economically and environmentally.

6.3.3 Disposal Options

Existing literature reveals various disposal options which the businesses can use to manage and extract value from these goods, depending on the type and situation of their businesses. Authors like Tibben-Lembke and Rogers (2002) and Thierry et al. (1995) provide some disposal options in a comprehensive way, which the retailers and manufacturers may use.

Disposal Options for Retailers	Disposal Options for Manufacturers
Return to vendor	Direct reuse/resale
Sell as new	Repair
Repackage, sell as new	Refurbishing
Sell via outlet	Remanufacturing
Remanufacture/refurbish	Cannibalisation
Sell to broker	Recycling
Donate to charity	Incineration
Recycle	Landfill
Landfill	
(Tibben-Lembke and Rogers, 2002, p.2)	(Thierry et al., 1995, p.118)

Table 6.7 Disposal Options for Reversed Goods

The findings align with the existing literature, as the studied businesses were more likely to use disposal options that reflect their resource constrained nature, which again adheres with their small size of business (Storey and Greene, 2010). Consequently, the disposal options they chose were the ones they had knowledge of, that were economically sound, and that were readily available. Landfilling options was an easy and economically sound option for them, which they frequently used. However, as mentioned in the literature, this option risks adverse effects on the environment which these businesses were not aware of (Rogers and Tibben-Lembke, 1999). Some of the businesses still landfilled even if they were aware of the situation, because managing these goods requires intense resources which were not in their reach (Jack, Powers and Skinner,

2010). It is understandable that MBs cannot do everything themselves, however, there are certain aspects which these businesses need to be aware of that may make the management of these goods both economically and environmentally sound. Effective dialogue with their suppliers may be required to bring effectiveness in the RL related activities, as one of the strongest ties mentioned in the process of RL is suppliers (Lau and Wang, 2009; Fawcett and Waller, 2013). MBs need to have effective dialogue with their suppliers so that the suppliers compensate them for the goods. They may also need to have dialogue with their suppliers so that the suppliers take these goods physically back, as there is a chance of these goods ending in landfill if are left behind with these businesses. Due to their small volume of goods, the studied businesses were hesitant to use brokers, recyclers and dismantlers, as these parties usually prefer to take goods in large volumes (Rogers, Melamed and Lembke, 2012). Smaller businesses can make the use of the clustering effect (Tambunan, 2005) in approaching these parties, where businesses may come together to combine their goods. For sensible disposal of their unwanted goods, businesses may also need to approach and establish rapport with charitable organisations (Lambert, Riopel and Abdul-Kader, 2011). Repairing and refurbishing, which requires lower levels of cost and expertise compared to remanufacturing and recycling (Thierry et. al., 1995) may be suitable for their resource-intense nature, which also needs to be fully utilised to maximise the value recovery from these goods. Furthermore, giving importance to the RL task and considering this as a strategic aspect, rather than a day to day aspect (Rubio and Jiménez-Parra, 2017) may help bring both economic and environmental effectiveness into these businesses.

6.3.4 Time Required

The existing literature depicts that the time required to manage these goods can vary (Rogers and Tibben-Lembke, 2001), which aligns with the initial study findings, as businesses were found to need different amounts of time depending upon the various goods type and situation. Existing literature also depicts that the time required cannot be predicted, which aligns with the findings of the current study. The varied nature of the products that accumulate in the RL channel can make time very intensive (Sonya Hsu, Alexander and Zhu, 2009) which aligns with the initial study. The current study showed that, due to their resource constrained nature, which is related to their small business size, the studied businesses may require more time to manage these goods. It was also found that, as time passes, these situations make the goods older and obsolete and selling these goods becomes more of a challenge, which aligns with the existing literature (Lieckens and

Vandaele, 2007; Min and Ko, 2008; Lee and Chan, 2009; Bernon, Rossi and Cullen, 2011). Due to their resource constrained nature, MBs can lean more towards the economic gain spectrum (Storey and Greene, 2010). This notion aligns with the findings of the initial study, as businesses were found working on decreasing the time span required to manage these goods, either for economic savings or economic gain. However, various reasons for slower value extraction from these goods were also found, as slow-moving goods need longer time on display for sale, and seasonal goods may need to wait another year to sell. Unavailability of parts, materials and labour, and waiting for the supplier's response if it is to be sent back or to be credited by the supplier, may also require more time. As a result, it is more likely that these products will become obsolete and expire (Lee and Chan 2009), which again may result in throwing them away, escalating the problems related to environmental damage (Rogers and Tibben-Lembke, 1999). It is understandable that small businesses are time constrained and may require more time to manage these goods (Zach and Munkvold, 2012). However, ways for quicker value extraction from these goods should be identified, as this can have implications on liquidity which can generate periodic negative cash flows (Horvath, Autry and Wilcox, 2005) for these businesses. This situation can be worse for MBs who are already resource constrained, which includes limited time.

6.3.5 Motivational Factors

Economic, environmental, corporate social responsibility and legislation are the main factors found as the drivers for RL (Ravi, Shankar and Tiwari, 2005). Literature on MBs reveals that MBs, because of their limited resources, are more inclined towards economic activities and less towards environmental (Hilary, 2004). The result of the initial study aligns with the existing literature, as the studied businesses were found engaging in RL activities more for economic benefit. There were, however, some businesses who also see environmental benefits in dealing with these goods. The studied businesses, even if leaning more towards economic benefits for managing these goods, should still be encouraged to manage these goods, as this act will also help in bringing environmental benefits.

6.4 Summary

The learning from the first phase research was used as one of the guiding factors for designing the data collection for the final phase research. The first phase study, through a mixed methods

approach using qualitative interview and survey methods, examined how the characteristics of MBs influence some of the key aspects concerning RL. The key aspects that emerged from the literature review, which the first phase research examined were: volume of goods accumulation; record keeping tendency; disposal options; time required; and motivational aspects. The findings indicate that certain micro firms' characteristics, such as attributes concerning the small size of the business and supply chain relationships, can affect RL in the MB context. Apart from these attributes, the nature of the product, external forces, accidents and technical issues were also found as factors affecting RL in the studied businesses.

As shown in Appendix C, attributes concerning the small size of the business came up as one of the strongest themes affecting the key RL aspects in the studied businesses. For instance, the volume of goods accumulation in individual businesses was found to be small, which reflected the nature of their micro size business. However, the cumulative effect it brings both economically and environmentally if not managed properly cannot be denied. It was also found that initially, goods accumulate in small quantities, but as time passes the quantity can become huge, which was experienced by the businesses who had been running for some time. As small businesses have fewer resources, they tend to use precautionary measures to lessen or avoid accumulations. However, these short-term precautions can also affect the small market share situation of these businesses. For instance, some businesses used tighter returns policies to lessen or avoid the accumulation to avoid the costs associated with it. This act, however, may alienate customers, resulting in the escalation of the small market share situation. Having limited knowledge or use of tacit knowledge, as another attribute attached to small business size, has also emerged as another strong theme. For instance, businesses did not have goods accumulation in the 'legislative take-back' category or the 'own initiative take-back' category, because they lacked the knowledge behind these take-backs. Besides, it was found that some of the businesses who had knowledge about these take-backs did not want to bother with them, because being small, they assumed that it is something they do not have to worry about. Businesses' lack of knowledge on the 'legislative' or the 'own initiative' take-back could also be due to the ineffective implementation of policy by the policy makers, which may need further research. Tacit knowledge was used by the studied businesses in almost every aspect related to RL, reflecting their small nature. For instance, the studied firms did not know the actual quantity of their goods accumulation, neither did they know the actual time required for managing these goods. These were based on

speculation, which was again based on tacit knowledge. Nevertheless, as the studied businesses were time constrained, they were likely to need more time to manage these goods. This tendency would again increase the possibility of the product expiring and becoming obsolete, which would be another reason for throwing these away. This situation can again result in both economic and environmental damage. Businesses also had little knowledge, or used tacit knowledge based on their previous experiences, to identify and to use the disposal options. The studied MBs, reflecting their small size, were found leaning more towards the economic spectrum of RL than the environmental spectrum. Concerned authorities such as The Small Business Act (2008) who are responsible for providing environmental assistance to these businesses may be able to encourage these businesses to get into RL activities.

The nature of supply chain relationships also came up as another strong theme in the initial study. It was found that suppliers were part of the helpful core related to RL for these businesses, as these businesses could use the resources of suppliers to compensate for their own limited resources. However, the studied businesses were also found to be failing to receive all the required help and support from their suppliers. Effective dialogue with suppliers may be required to bring effectiveness into RL activities. For instance, businesses could have an effective dialogue with those suppliers who economically compensate the damaged, broken or expired goods for them, but who do not take them back physically. Since the studied businesses are micro and thus resource constrained in nature, they were not motivated to manage goods that have already been economically compensated by the suppliers. Nevertheless, the nature of the goods, external forces like transport agencies who deliver the goods, accidents, and technical issues were also some of the themes that came up during the analysis that were likely to affect the studied issues.

The first phase research provided some insights on some key RL issues in the MB context, with the possibility to build on the research findings by commencing a more in-depth inquiry. Consequently, to conduct an in-depth inquiry, a case study method has been employed which allowed the collection of data using multiple data collection methods in natural settings over a longer period. This approach not only allowed the key themes recognised from the first phase study to be explored and developed in more detail, but also helped to identify new themes using the two relevant theoretical lenses of RBV and TCE.

Chapter 7: The Final Phase Research

7.1 Introduction

The aim of the final phase research is to investigate and understand the way MBs perform RL, to contribute to and develop the existing literature on RL. The objective of the research is to explore the processes of RL in MBs, to understand the businesses' capabilities, and the way they address the associated costs. This again will contribute towards and develop the capabilities and cost aspects concerning the studied businesses. The research questions which emerged from the literature reviews and theoretical foundations are presented in Table 7.1.

RBV focus	Do micro businesses have the capabilities to go through the process of reverse logistics for sustainable competitive advantage?
TCE focus	How do micro businesses address/perceive the cost involved in the process of reverse logistics?

Table 7.1 Research Questions based on Literature Review and Theoretical Foundations

The capabilities and costs related to RL are not easy to explain. The capabilities required for phenomena like RL may not be understood by only using one or two variables. Variables in RL are many, and are interrelated, and therefore relating one variable with another may help to see the bigger picture. Understanding the capability of RL and knowing how MBs perceive/address the related costs could only be understood if the 'how' and 'why' aspects of the process of this phenomenon are understood. Nevertheless, some of the essential factors likely to affect the process of RL in MB were the focus of the first phase study, which has helped in designing the data collection for the final phase research. Hence, the data collection and analysis for the final phase study of this research is based on understanding the process of RL, with regards to the involved capabilities and cost.

Consequently, under the qualitative research methodology, a case study approach was deemed appropriate for this research (Yin, 2003). Using purposive sampling methods (Maxwell, 1996), six cases, as micro retail businesses, were chosen from the Devon and Cornwall area of the UK. These cases helped to reach the data to saturation point without the need to add more cases (Mason, 2010). The six chosen cases had both similar and contrasting characteristics, as '*extreme or deviant cases provide interesting contrasts with other cases, thereby allowing for*

comparability across those cases' (Teddlie and Yu, 2007, p.81). Case study allows the collection of evidence using a range of data collection methods, such as documentation, archival records, interviews, direct observation, participant observation and physical artefacts which will help the researcher to triangulate the evidence, enhancing construct validity (Yin, 2014). Nevertheless, data in the studied business were difficult to collect using these methods. Data were collected using a semi-structured interview as the main method, and participant observation as the supporting method (Yin, 2014). The identified codes and themes, as presented in Appendix H, were analysed using thematic analysis (Braun and Clarke, 2006). As explained earlier, the researcher in this study is exploring the capabilities and cost of RL by investigating the process of RL. Hence, a large array of codes to represent the process and to represent the aspects influencing the process was deemed possible. As presented in Appendix H, the researcher identified a large number of codes. This has again been used to make the within-case analysis, followed by the cross-case analysis (Eisenhardt, 1989). This process of data collection and analysis is believed to assist in understanding the capabilities, and to understand the way these businesses perceive the cost involved in the process of RL. The key findings relevant to the research question is presented in the sections below.

7.2 Characteristics of the Studied Firms

As displayed in Table 7.2, the characteristics of the studied firms are both similar and contrasting. All of the businesses fall under the criteria/definition of 'micro business', as they all have fewer than 10 employees (European Commission, 2008) and all are based in the Devon and Cornwall area of the UK. The education levels of the respondents are very similar to one another, however the practical experience in the retail industry varies – for example, Firm D is a much younger business compared to Firm E. With the exception of Firm D, all respondents had been involved in some other retail business before embarking upon the current retail business. This means that all the businesses, apart from Firm D, also brought their prior businesses experience to the existing one. The firms' characteristics are also contrasting, as they all deal with various product lines. However, as shown in Table 7.2, there are some similarities between the product lines of Firm A & C, Firm B & F, and Firm D & E, which means there are some similarities in the process of RL for the firms who hold similar product lines, and some differences for those who hold different product lines.

	Firm A	Firm B	Firm C	Firm D	Firm E	Firm F
Owner's Age	55 years	50 years	34 years	28 years	60 years	43 years old
Owner's education level	Graduate	Graduate	A level	Graduate	Graduate	Graduate
Experience in the industry	In the retail business for last 25 years	In the retail business for last 25 years	Worked in the retail business for last 10 years	In the retail business for last 6 months	In the retail business for last 35 years and self-employed all the time	In the retail business for last 20 years. Inherited this business from father 20 years ago (business has been running for last 40 years)
Employees	3	3	4	2	2	4
Business	Newsagent and convenience store	New and used electrical and electronic home appliances	Pound shop and Mini Market	Ladies fashion clothing business	Ladies fashion clothing business	Electrical and Electronic items
Product Type	Newspapers, magazines, household items, greetings cards, wines, spirits, beers, soft drinks, cigarettes, groceries, beverages, confectioneries, medicines, pasties, electronic lighters, batteries, tobacco products, party items, sandwiches, pies, electrical products, toiletries and candles.	Both new and used washing machines, cookers, freezers, microwaves, dryers, dishwashers and commercial electronic items used in hotels, takeaways and restaurants	Wines, spirits, beers, soft drinks, cigarettes, groceries, beverages, confectioneries, household items, pet items, toys, car maintenance items, DIY items, medicines, pasties, electronic lighters, batteries, tobacco products, party items, sandwiches, pies, electrical products, toiletries, candles and women's accessories	Ladies' clothing; accessories like shoes and bags, children's and infant clothing and some men's clothing	Ladies' clothing and accessories for all ages and season	Electrical equipment including batteries
Age of the current business	25 years	5 years	5 years	6 months	5 years	10 years
Business ownership	Sole trading	Sole trading	Sole Trading	Sole trading	Sole Trading	Sole trading
Area size	400 square feet	2000 square feet	1500 Square Feet	800 square feet	200 square feet	800 square feet

Table 7.2 Characteristics of the Studied Firms

7.3 Within-Case Analysis

Within-case analysis is the basis of case study analysis, as this will be used to compare the cases for cross-case analysis (Yin, 2014). The interview transcripts and daily observation journal for each of the six cases were initially analysed using the Checklist Matrix (Miles and Huberman, 1994), which was used as a tool to organise the data and identify initial themes (presented in Appendix H) within each case. Relevant quotes have been used to support the identified themes to give meaning to the data (Wolcott, 1994). Themes were not organised formally at this stage, but the themes from the literature review and themes from the first phase study guided the analysis process. Once the analysis was completed for Firm A, then the identified themes were examined with the other cases. This not only enabled the cross-case comparison, but also allowed identification of the case-specific themes. Various themes recorded for each firm were then compared against the literature to identify and progress with the key themes, which is presented in Appendix H. The findings for each case are presented in Appendix G. The case overview for each case, concentrating on the way capabilities and costs are addressed by each business to progress with the RL activities is analysed as follows.

7.3.1 Case Overview for Firm A

Involvement in the Process of Reverse Logistics by Firm A
Goods accumulation
Transportation or moving
Warehousing/storage
Sorting/selecting/inspecting
Using the disposal options

Table 7.3 Involvement in Reverse Logistics Process – Firm A

Resources Used to Build Capabilities with Reasons – Firm A
Tacit knowledge gained from past experiences as a capability
To understand the goods accumulation in various categories with its reasons
To understand the reasons for keeping permanent records of the goods accumulated in the reverse channel
To understand the reasons for keeping temporary records of the goods
To speculate the volume of goods accumulation
To understand how and why to use the precautionary measures
For know-how in transporting and moving goods from one place to the other
For know-how in warehousing and storing the goods
For sorting/sorting/selecting/inspecting

For understanding and using/choosing the disposal option
To understand how and why to use the supply chain relationship
To understand how and why to speculate the time required
Time
Transporting and moving /goods from one place to the other x
Warehousing and storing the goods
Sorting selecting and inspecting
Using the disposal option
Effort
Transporting and moving /goods from one place to the other
Warehousing and storing the goods
Sorting selecting and inspecting
Using the disposal option
Private Transport System
Transporting and moving goods from one place to the other
Supply Chain Relationship
Transporting and moving goods to the suppliers' place
Warehousing and storing the accumulations
Sorting/selecting/inspection
Using as the disposal option
Storage Space
Warehousing/storing the accumulations
Space for Bin
To place the bin
Information
To inform the suppliers about the accumulation for compensation
Physical Attribute - Phone
To send information to the suppliers about the accumulation
Physical Attributes - Sellotape, Staples
For minor repairing and refurbishing
Physical Attributes - Pen and Paper
For writing the reduced price and stick this in the product
For writing the temporary/permanent record of the goods accumulation
Physical attributes - Tools/Equipment or Spare Parts
For repairing and refurbishing
Physical attribute bin and bin bag
External Entity - Paid Bin Man
To pick up the discarded goods
Unethical Behaviour
To use the disposal option by selling the customer return goods as new
Excessive Precaution/Prevention Behaviour

To use very tight returns policy
Opportunistic Economic and Social Behaviour
To make personal use and office use of goods for economic gain

Table 7.4 Resources and Capabilities used by Firm A to Build Reverse Logistics Capabilities

Table 7.3 and Appendices G and H show that Firm A has goods accumulation in various categories and is involved in all activities related to RL. Table 7.4 and Appendices G and H give an overview of the various capabilities and tangible and intangible resources used by Firm A to build capabilities. Formality was not the norm in Firm A, and they used tacit knowledge gained from past experiences as an informal way of doing things. The readily available resources included the owner/manager or the staff members' time and effort, and physical and tangible attributes which were readily available and economically affordable.

Supply chain relationship was also a frequently used resource to gain relevant help and support from the suppliers; however, this help and support was limited to the terms and conditions with the suppliers. Firm A's supplier is international and are not in their proximity, which means they are unable to build a close relationship. Consultation with the owner revealed that they had 21 suppliers in total. They had suppliers with both arm length transactional and long-term relationships. They received and gave advice to their suppliers, however they revealed that the dialogue was not fruitful. As the owner of Firm A said: '*we do not receive any relevant information from their supplier which would help us to process the goods*' (Owner, Firm A). The owner of Firm A was not resentful, but rather had compassion towards their suppliers, because they said: '*we are at least receiving some help and support from our suppliers, even if the support is purely based on standard terms and conditions*' (Owner, Firm A). Unethical behaviour involved selling customers returned goods as new, without allowing this to be known to the customers. Excessive preventive measures were used by too much tightening of the returns policy, which runs the risk of alienating customers.

As shown in Appendix J, Firm A was involved in several cost related activities and used various measures to avoid and reduce the costs. As explained in the same Appendix, some costs remained hidden which could bring adverse repercussions to the firm. As shown in Appendix I, various new themes have emerged from the analysis of Firm A which relate to the use of resources, supply chain relationship, drivers, and barriers of RL. For instance, they used

'opportunistic behaviour' to make the business or the personal use of the goods that cannot be sold to customers for some reason. As shown in Appendix H, Firm A was economically motivated to become involved in RL activities, however, as analysed in Appendix H, they also faced various barriers for going through the process of RL which has prohibited them to explore, identify and develop the required capabilities.

7.3.2 Case Overview for Firm B

Involvement in the Process of Reverse Logistics by Firm B
Goods accumulation
Transportation or moving
Warehousing/storage
Sorting/selecting/inspecting
Using the disposal options

Table 7.5 Involvement in the Reverse Logistics Process – Firm B

Used Resources to Build Capabilities with Reasons – Firm B
Tacit Knowledge Gained from Past Experiences as a Capability
To understand the goods accumulation in various categories with its reasons
To understand the reasons for keeping temporary records of the goods
To speculate the volume of goods accumulation
To understand how and why to use the precautionary measures
For know-how in transporting and moving goods from one place to the other
For know-how in warehousing and storing the goods
For sorting/sorting/selecting/inspecting
For understanding and using/choosing the disposal option
To understand how and why to use the supply chain relationship
To understand how and why to speculate the time required
Time
In transporting and moving /goods from one place to the other x
In warehousing and storing the goods
For sorting selecting and inspecting
For using the disposal option
Effort
In transporting and moving /goods from one place to the other
In warehousing and storing the goods
For sorting selecting and inspecting
For using the disposal option

Business Transport System
Transporting and moving goods from one place to the other
Supply Chain Relationship
Transporting and moving good to the supplier's place
Using as the disposal option
Storage Space
For warehousing/storing the accumulations
Space for Bin
To place the bin
External Entity as Specialist Engineer
For sorting selecting and inspecting
For disposal (repairing and refurbishing)
Information
To in/form the suppliers about the accumulation for compensation
Physical Attribute - Phone
To send information to the suppliers about the accumulation
Physical Attribute - Computer
To send information to the suppliers about the accumulation
Physical Attribute - Picture Taking Device
To take pictures to upload in the web channels like Facebook, eBay, Amazon, Gumtree and Website
Physical Attribute - Pen and Paper
For writing the reduced price and stick this in the product
For writing the temporary/permanent record of the goods accumulation
Physical Attributes - Tools/Equipment or Spare Parts
For repairing and refurbishing
Physical attribute bin and bin bag
External Entity - Paid Bin Man
To pick up the discarded goods
Cleaners
To clean and police the used and second-hand goods
Other Contact of Companies/Wholesalers
For purchasing spare parts for repairing and refurbishing
Online Channels – eBay or Amazon for Spare Parts
For purchasing spare parts for repairing and refurbishing
Scrap People (informal recyclers and dismantlers)
To give away the discarded home appliances to these people
Money
To invest in the other channels like Facebook, Website, eBay, Amazon and Gumtree
Informal Behaviour
To give away the discarded home appliances to the scrap people who would handle this informally

Unethical Behaviour
To use the disposal option by selling the customer return goods as new
Excessive Precaution/Prevention Behaviour
To use the very tight return policy
Opportunistic Economic and Social Behaviour
To make personal use and office use of goods for economic gain

Table 7.6 Resources and Capabilities used by Firm B to Build Reverse Logistics Capabilities

Table 7.5 and Appendices G and H show that Firm B has goods accumulation in various categories and is involved in various activities related to RL. Table 7.6 and Appendices G and H give an overview of the various capabilities and tangible and intangible resources used by Firm B to build capabilities. Like Firm A, formality is not the norm in Firm B and they use tacit knowledge gained from past experiences, as an informal way of doing things. Unlike Firm A, Firm B use more tangible and intangible resources because Firm B's core business activity is related to bringing in used and second-hand goods and repairing/refurbishing them for further profitable selling. The readily available resources like the owner/manager or the staff members' time and effort was seen heavily deployed in all aspects of the process. Firm B also owned their proper transport system as they needed this to pick up and deliver their bulky items, which was an added cost. External entities such as paid specialist engineers were used for inspection and repair purposes, which was another added cost for Firm B. External entities like bin men were used to pick up unwanted goods. Cleaners were used to clean and polish the used and second-hand goods, and other companies/wholesalers, eBay or Amazon, were used to buy spare parts, which again was an added cost. They also mentioned the use of funds needed to run other channels like eBay for selling goods.

The supply chain relationship was also used as a resource to gain relevant help and support from the suppliers. However, this help and support was limited to the terms and conditions with the suppliers. Firms B's suppliers are both local and international; close interaction was made possible with suppliers in close proximity. The consultation with the owner revealed that they had 25 suppliers in total, but there was no limit on their supplier number as they bought or collected goods from an unlimited number of end users as well. They had transactional relationships with some suppliers with no long-term relationship as yet. They had no dialogue with the suppliers

about the goods that accumulate in the reverse channel, as they do not see any benefit in doing this.

As shown in Appendix J, Firm B was involved in a number of cost-related activities and used various measures to avoid and reduce the costs. As explained in Appendix J, some costs remained hidden which could bring adverse repercussions to the firm. As shown in Appendix I, various new themes emerged from the analysis of Firm B related to the use of resources, supply chain relationship, drivers, and barriers of RL. For instance, resources like 'informal behaviour' were used because they gave away unwanted goods to the scrap people, who would process these informally causing health and environmental harm. As shown in Appendix H, Firm B was economically motivated to become involved in RL activities, however, as analysed in Appendix H, they also faced various barriers to RL which has prohibited them to explore, identify and develop the required capabilities.

7.3.3 Case Overview for Firm C

Involvement in the Process of Reverse Logistics by Firm C
Goods accumulation
Transportation or moving
Warehousing/storage
Sorting/selecting/inspecting
Using the disposal options

Table 7.7 Involvement in Reverse Logistics Process by Firm C

Resources Used to Build Capabilities with Reasons – Firm C
Goods accumulation
Transportation or moving
Warehousing/storage
Sorting/selecting/inspecting
Using the disposal options
Tacit Knowledge Gained from Past Experiences as a Capability
To understand the goods accumulation in various categories with its reasons
To understand the reasons for keeping temporary records of the goods
To speculate the volume of goods accumulation
To understand how and why to use the precautionary measures
For know-how in transporting and moving goods from one place to the other
For know-how in warehousing and storing the goods
For sorting/sorting/selecting/inspecting

For understanding and using/choosing the disposal option
To understand how and why to use the supply chain relationship
To understand how and why to speculate the time required
Time
In transporting and moving /goods from one place to the other x
In warehousing and storing the goods
For sorting selecting and inspecting
For using the disposal option
Effort
In transporting and moving /goods from one place to the other
In warehousing and storing the goods
For sorting selecting and inspecting
For using the disposal option
Private Transport System
In transporting and moving goods from one place to the other
Supply Chain Relationship
In transporting and moving good to the suppliers' place
For using as the disposal option
Storage Space
For warehousing/storing the accumulations
Space for Bin
To place the bin
Information
To in/form the suppliers about the accumulation for compensation
Physical Attributes - Phone
To send information to the suppliers about the accumulation
Physical Attributes - Sellotape, Staples
For minor repairing and refurbishing
Physical Attributes - Pen and Paper
For writing the reduced price and stick this in the product
For writing the temporary/permanent record of the goods accumulation
Physical attribute bin and bin bag
External Entity - Paid Bin Man
To pick up the discarded goods
Unethical Behaviour
To use the disposal option by selling the customer return goods as new
Excessive Precaution/Prevention Behaviour
To use very tight return policy
Opportunistic Economic and Social Behaviour
To make personal use and office use of goods for economic gain, and, to give goods to friends and family for social recognition

Table 7.8 Resources and Capabilities used by Firm C to Build Reverse Logistics Capabilities

As shown in Table 7.7 and Appendices G and H, Firm C has goods accumulation in various categories and is involved in a number of activities related to RL. Table 7.8 and Appendices G and H give an overview of the various capabilities and tangible and intangible resources used by Firm C to build capabilities. Like Firms A and B, formality is not the norm for Firm C and they use tacit knowledge gained from past experiences as an informal way of doing things. Firm C uses both tangible and intangible resources to build capabilities for the RL process. The readily available and economical resources like the owner/manager or the staff members' time and effort, and physical and tangible attributes were seen heavily deployed in all aspects of the process. Another external entity like a paid bin man was used to pick up the unwanted goods.

Supply chain relationship was also a frequently used resource to gain relevant help and support from suppliers; however, this help and support was again limited to the terms and conditions with the suppliers. Firms C's suppliers are both local to the company and further afield. The consultation with the owner revealed that they have 19 suppliers in total. They have had a relationship with some of the suppliers for a long time, but in practice, they said the relationship is arms-length and transactional in nature. They revealed that they had to maintain good relationship, even if there were moments when they were not very happy with their suppliers, as their suppliers were large and dominant. They have had dialogue with the suppliers about the goods that accumulate in the reverse channel, however the dialogue was not fruitful. As the owner of Firm C said: '*they try to give us some information on what is in the market, what goes well and how we can make money, but this does not always work, you know*' (Owner, Firm C). Nevertheless, it was revealed that they do not harbour any resentment, but have compassion towards their supplier. This is because they get some help from their suppliers on reversing the logistics, even if it is limited to the suppliers' terms and conditions.

As shown in Appendix J, Firm C was involved in a few cost-related activities and used various measures to avoid and reduce the costs. As explained in Appendix J, some costs remained hidden which could bring adverse repercussions to the firm. As shown in Appendix I, various new themes emerged from the analysis of Firm C relating to the use of resources, supply chain relationship, drivers, and barriers of RL. For instance, resources like 'speculative behaviour' was used because they did not have precise knowledge, but speculated about the volume of goods accumulation, and the time required. As shown in Appendix H, Firm C was economically

motivated to become involved in RL activities, however, as analysed in Appendix H, they also faced various barriers prohibiting them from exploring, identifying and developing capabilities.

7.3.4 Case Overview for Firm D

Involvement in the Process of Reverse Logistics by Firm D
Goods accumulation
Transportation or moving
Warehousing/storage
Sorting/selecting/inspecting
Using the disposal options

Table 7.9 Involvement in Reverse Logistics Process by Firm D

Resources Used to Build Capabilities with Reasons – Firm D
To understand the goods accumulation in various categories with its reasons
To understand the reasons for keeping temporary records of the goods
to speculate the volume of goods accumulation
To understand how and why to use the precautionary measures
for know-how in transporting and moving goods from one place to the other
for know-how in warehousing and storing the goods
For sorting/sorting/selecting/inspecting
For understanding and using/choosing the disposal option
To understand how and why to use the supply chain relationship
To understand how and why to speculate the time required
Time
In transporting and moving /goods from one place to the other x
In warehousing and storing the goods
For sorting selecting and inspecting
For using the disposal option
Effort
In transporting and moving /goods from one place to the other
In warehousing and storing the goods
For sorting selecting and inspecting
For using the disposal option
Private Transport System
In transporting and moving goods from one place to the other
Supply Chain Relationship
For using as the disposal option

Storage Space
For warehousing/storing the accumulations
Space for Bin
To place the bin
Information
To in/form the suppliers about the accumulation for compensation
Physical Attribute - Computer
To send information to the suppliers about the accumulation
Physical attribute - Picture Taking Device
To take pictures to upload in the web channels like Facebook, eBay, Amazon, Gumtree and Website
Physical Attribute - Pen and Paper
For writing the reduced price and stick this in the product
For writing the temporary/permanent record of the goods accumulation
Physical attribute bin and bin bag
Money
To invest in the other channels like Facebook, Website, eBay, Amazon and Gumtree
Unethical Behaviour
To use the disposal option by selling the customer return goods as new
Excessive Precaution/Prevention Behaviour
To use a very tight returns policy
Opportunistic Economic and Social Behaviour
To make personal use and office use of goods for economic gain

Table 7.10 Resources and Capabilities used by Firm D to Build Reverse Logistics Capabilities

Among the six studied businesses, Firm D is the only start up business, as during the data collection period it was found that the business had only been running for six months. As shown in Table 7.9 and Appendices G and H, Firm D has goods accumulation in various categories and is involved in several activities related to RL. Table 7.10 and Appendices G and H give an overview of the various capabilities and tangible and intangible resources used by Firm D to build capabilities. Formality was again not the norm for Firm D and they use tacit knowledge gained from past experiences as an informal way of doing things. Firm D uses both tangible and intangible resources to build capabilities for the RL process. The readily available and economical resources like the owner/manager or the staff members' time and effort, and physical and tangible attributes were seen heavily deployed in all aspects of the process. They were, however, also found using a personal computer for writing emails to the supplier and for using Facebook and

their website to sell and promote their goods. They also mentioned that they needed money to run the other channels for selling goods.

Firm D's suppliers are all international and located abroad. Unlike Firms A, B and C, Firm D had a small supplier base of two or three suppliers, and this was because they are a newly established business without a contact for a large supplier. It was revealed that they had suppliers with whom they have an arms-length transactional relationship, and breaking the relationship with them would be easy if necessary. They had no dialogue with their suppliers about the goods that accumulated in the reverse channel, as they believe the suppliers can do nothing about this. However, they did receive advice from their suppliers, even though the advice was not always useful. They again had compassion and no resentment towards their supplier, as the owner of Firm D believed that '*the suppliers can do nothing about the unsold and excess goods because we ourselves have made the decision of what to buy and what not to buy*' (Owner, Firm D).

As shown in Appendix J, Firm D was involved in several cost-related activities and used various measures to avoid and reduce costs. As explained in Appendix J, some costs remained hidden which could bring adverse repercussions to the firm. As shown in Appendix I, various new themes have emerged from the analysis of Firm D relating to the use of resources, supply chain relationship, drivers, and barriers to RL. For instance, resources like 'unethical behaviour' has emerged as new theme, as they sold the returned goods as new to other customers without letting the customers know about this. As shown in Appendix H, Firm D was economically motivated to become involved in the RL activities; however, as analysed in Appendix H, they also faced various barriers prohibiting them from exploring, identifying and developing their capabilities.

7.3.5 Case Overview for Firm E

Involvement in the Process of Reverse Logistics by Firm E
Goods accumulation
Transportation or moving
Warehousing/storage
Sorting/selecting/inspecting
Using the disposal options

Table 7.11 Involvement in Reverse Logistics Process by Firm E

Resources Used to Build Capabilities with Reasons for Use – Firm E
Tacit Knowledge Gained from Past Experiences as a Capability
To understand the goods accumulation in various categories with its reasons
To speculate the volume of goods accumulation
To understand how and why to use the precautionary measures
For know-how in transporting and moving goods from one place to the other
For know-how in warehousing and storing the goods
For sorting/sorting/selecting/inspecting
For understanding and using/choosing the disposal option
To understand how and why to use the supply chain relationship
To understand how and why to speculate the time required
Time
In transporting and moving /goods from one place to the other x
In warehousing and storing the goods
For sorting selecting and inspecting
For using the disposal option
Effort
In transporting and moving /goods from one place to the other
In warehousing and storing the goods
For sorting selecting and inspecting
For using the disposal option
Private Transport System
In transporting and moving goods from one place to the other
Supply Chain Relationship
For using as the disposal option
Storage Space
For warehousing/storing the accumulations
Space for Bin
To place the bin
Information
To in/form the suppliers about the accumulation for compensation
Physical Attribute - Phone
To send information to the suppliers about the accumulation
Physical Attribute - Pen and Paper
For writing the reduced price and stick this in the product
For writing the temporary/permanent record of the goods accumulation
Physical attribute bin and bin bag
Charitable Organisation
To give away their year-long accumulation to the charity
Illegitimate Behaviour

To store the accumulation in the loft without the consent of the landlord
Unethical Behaviour
To use the disposal option by selling the customer return goods as new
Excessive Precaution/Prevention Behaviour
To use a very tight return policy

Table 7.12 Resources and Capabilities used by Firm E to Build Reverse Logistics Capabilities

Table 7.11 and Appendices G and H show that Firm E has goods accumulation in various categories and is involved in several activities related to RL. Table 7.12 and Appendices G and H give an overview of the various capabilities and tangible and intangible resources used by Firm E to build capabilities. Like the earlier firms, formality was not the norm in Firm E and they used tacit knowledge gained from past experiences as an informal way of doing things. The readily available and economical resources like the owner/manager or the staff members' time and effort, and physical and tangible attributes were used by Firm E. Among other disposal options, Firm E was the only firm to use charitable organisations to dispose of their goods, as they said: '*giving away unsold and excess goods to charity will bring tax rebate and there is no extra investment in doing so*' (Owner, Firm E).

Supply chain relationship was also a frequently used resource to gain relevant help and support from the suppliers. Unlike other firms, this help and support was not just limited to the terms and conditions agreed with the suppliers. Firm E's suppliers are both in close proximity and further away. The consultation with the owner revealed that they had 10-12 suppliers in total. There were many indications that they had long-term collaborative relationships with their suppliers. As the owner said: '*we help our suppliers and in return they help us*' (Owner, Firm E). Their dialogue goes two ways, as they both receive advice from the suppliers and give advice to them. However, the dialogue was not always fruitful. Firm E said: '*our suppliers are businessmen like us who have numerous problems*' (Owner, Firm E); hence, they had no resentment but had compassion towards their suppliers.

As shown in Appendix J, Firm E was involved in cost-related activities which were known to them, and used various measures to avoid and reduce the costs. As explained in Appendix J, some costs remained hidden which could bring adverse repercussions to the firm. As shown in Appendix I, various new themes have emerged from the analysis of Firm E relating to the use of resources, supply chain relationship, drivers, and barriers to RL. For instance, help and support

under the 'standardised support' theme was received from the suppliers. This support was based on standard terms and conditions which were unrelated to mutual understanding and collaboration. As shown in Appendix H, Firm E was economically motivated to become involved in RL activities, however, as analysed in Appendix H, they also faced various barriers which have prohibited the exploration, identification and development of capabilities.

7.3.6 Case Overview for Firm F

Involvement in the Process of Reverse Logistics by Firm F
Goods accumulation
Transportation or moving
Warehousing/storage
Sorting/selecting/inspecting
Using the disposal options

Table 7.13 Involvement in Reverse Logistics Process by Firm F

Resources Used to Build Capabilities with Reasons for Use – Firm F
Tacit Knowledge Gained from Past Experiences as a Capability
To understand the goods accumulation in various categories with its reasons
To understand the reasons for keeping temporary records of the goods
To speculate the volume of goods accumulation
To understand how and why to use the precautionary measures
For know-how in transporting and moving goods from one place to the other
For know-how in warehousing and storing the goods
For sorting/sorting/selecting/inspecting
For understanding and using/choosing the disposal option
To understand how and why to use the supply chain relationship
To understand how and why to speculate the time required
Time
In transporting and moving /goods from one place to the other x
In warehousing and storing the goods
For sorting selecting and inspecting
For using the disposal option
Effort
In transporting and moving /goods from one place to the other
In warehousing and storing the goods
For sorting selecting and inspecting
For using the disposal option
Private Transport System

In transporting and moving goods from one place to the other
Supply Chain Relationship
In transporting and moving good to the suppliers' place
For using as the disposal option
Storage Space
For warehousing/storing the accumulations
Space for Bin
To place the bin
Information
To inform the suppliers about the accumulation for compensation
Physical Attribute - Phone
To send information to the suppliers about the accumulation
Physical Attribute - Computer
To send information to the suppliers about the accumulation
Physical Attribute - Pen and Paper
For writing the reduced price and stick this in the product
For writing the temporary/permanent record of the goods accumulation
Physical attribute bin and bin bag
External Entity - Paid Bin Man
To pick up the discarded goods
Unethical Behaviour
To use the disposal option by selling the customer return goods as new
Excessive Precaution/Prevention Behaviour
To use a very tight return policy
Opportunistic Economic and Social Behaviour
To make personal use and office use of goods for economic gain

Table 7.14 Resources and Capabilities used by Firm A to Build Reverse Logistics Capabilities

Table 7.13 and Appendices G and H show that Firm F has goods accumulation in various categories and is involved in a number of activities related to RL. Table 7.14 and Appendices G and H give an overview of the various capabilities and tangible and intangible resources used by Firm F to build capabilities. Like the other studied firms, formality was not the norm in Firm F and they used tacit knowledge gained from past experiences as an informal way of doing things. The readily available and economical resources like the owner/manager or the staff members' time and effort, and physical and tangible attributes were used by Firm F. An external entity such as a paid bin man was also used to throw the unwanted goods.

Firms F's suppliers are both in close proximity and located further afield. The total number of suppliers was not at hand until it was worked out, and it was found that they have 18 suppliers in

total. The firm had both arms-length transactional relationships and long-term relationships with suppliers, as they have been working with some suppliers for a long period of time. Their dialogue with their suppliers went two ways, as they both received advice from and gave advice to suppliers. However, the dialogue was not fruitful.

As shown in Appendix J, Firm F was involved in a few cost-related activities and used various measures to avoid and reduce the costs. As explained in Appendix J, some costs remained hidden which could bring adverse repercussions to the firm. As shown in Appendix I, various new themes have emerged from the analysis of Firm F relating to the use of resources, supply chain relationship, drivers, and barriers to RL. For instance, having 'compassion but no resentment' towards the suppliers, even if they did not provide all the necessary help and support, was an emerging theme. As shown in Appendix H, Firm F was economically motivated to become involved in RL activities, however, as analysed in Appendix H, they also faced various barriers which prohibited them from exploring, identifying and developing the required capabilities.

7.4 Cross-Case Analysis

The core analytical part of the case study analysis is to compare the themes emerging from each case (presented in Appendix H), with each of the other cases. Cross-case analysis will be made to see how the factors/themes analysed from each case come together in understanding the capability and cost aspect concerning the process of RL, in the studied businesses. As shown in Figure 7.1, a comprehensive outline is developed, which helps in organising and presenting the case studies for cross-case analysis, to identify and critically examine the similarities and differences between the cases (Yin, 2009). As presented in Figure 7.1, 'Firm Characteristics' and 'Processes in Reverse Logistics' have been used as the guiding factor to identify and analyse the capabilities and cost component for processing RL, in the studied businesses. The section below will explain the way the various tangible and intangible resources are deployed in building the capabilities, and the way the cost has been addressed by the studied businesses. Finally, what effect the identified drivers and barriers have in the process of RL, and how these drivers and barriers are affecting the capabilities and cost in the studied businesses will be elucidated.

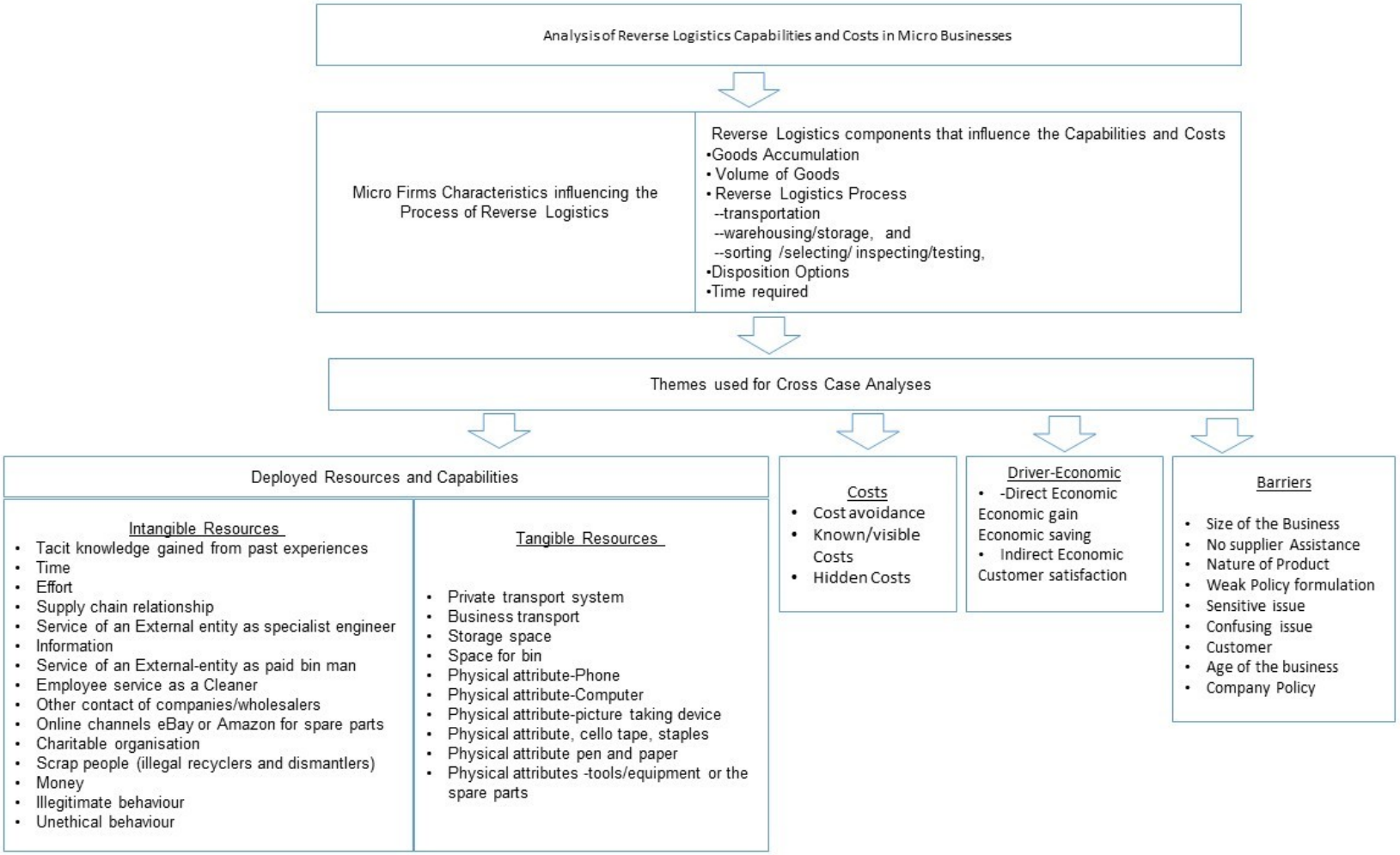

Figure 7.1 Analysis Framework for Understanding Capabilities and Costs

7.4.1 Supply Chain Relationship

Proximity	Suppliers are closely situated giving the firm close interaction	A, B, C, F
	Suppliers are situated in the far proximity, but still giving the firm close interaction	B, C, D, E, F
Supplier Number	Firm did not have the suppliers number handy, and it had to be worked out-indicates transactional relationship	A, B, C, E, F
	Firm had the suppliers number handy and it did not have to be worked out-new firm know	D
Dialogue	Firms have dialogue with their supplier about the goods accumulated in reverse channel	A, C, E, F
	Firms do not have dialogue with their suppliers about the goods accumulated in the reverse channel	B, D
	Dialogue with the supplier is not fruitful	A, B
	Dialogue with the suppler is not always fruitful	C, D, E, F
	Firm provide advice to the suppliers	C, E, F
	Firm receive advice from the suppliers	A, D, E, F
Policy	Suppliers sell goods on sale or return terms	A, C
	Suppliers do not sale goods in sale or return terms	A, B, C, D, E, F
	Standardise support based on terms and conditions not on mutual understanding and collaboration	A, B, C, D, E, F
Relationship	Relationship with some suppliers is arm length and transactional	A, B, C, D, F
	Relationship with some of the suppliers is long term but not collaborative	A, B, C, D, E, F
	Relationship with some of the suppliers is long term and collaborative	A, E, F
	Firms show superiority in relationship because they can provide advice to the suppliers	C, E
	Firms have compassion but no resentment towards their suppliers even if they do not provide all the help and support	A, D, E, F
	Firm have some resentment towards some of their suppliers because they do not provide the help and support	C
	Firms are reliance on suppliers for their help and support	A, B, C, D, E, F
	Suppliers support is a relief for the firms	A, B, C, D, E, F
	Suppliers are playing the burdensome role by not taking the goods physically back	A, B, C, F
Help and Support	Some suppliers compensate the unsold and excess goods	A, C, F
	Most of the firms' suppliers compensate damaged/faulty expired goods	A, B, C, D, E, F
	Suppliers provide purchase advice to the firms	A, C, D, E, F
	Some suppliers assist in storage	A
	Not all suppliers assist in storage	A, B, C, D, E, F
	Some suppliers assist in sorting/selecting/inspecting	A, C
	Not all suppliers assist in sorting selecting inspecting	A, B, C, D, E, F
	Some suppliers assist in transporting	A, B, C, F
	Not all suppliers assist in transporting	A, B, C, D, E, F
	Some suppliers physically take the reversed goods back	A, B, C, D, E, F

Table 7.15 Supply Chain Relationships in the Studied Firms

It has been found that the nearest parties involved in process of RL are the supply chain partners, which the studied businesses have used as resources to build capabilities for reversing their logistics. Hence, it will be imperative to understand the status of these partners and how they may have affected the capability and cost aspects related to the RL process. The data presented in Table 7.15 will be used to examine and analyse these aspects. The newly emerging themes related to supply chain relationships is presented in Appendix I.

It was believed that the firms who have suppliers in close proximity are able to build close relationships with them which would give them more opportunity to closely discuss the issues with their suppliers, and vice versa, compared to firms whose suppliers are further away. Interestingly, it was found that firms like D and E, who have suppliers far away, equally had this opportunity, as the owner of Firm D said: '*we personally visit our suppliers for the purchase of new stock where we get the chance to interact with them*' (Owner, Firm D). The fact that most of the firms did not have a list of their suppliers handy or did not immediately know how many suppliers they have, shows that they do not see this as an important task and indicates that their relationship with most of their suppliers may have been short-term and transactional. It was believed that firms may have built long-term relationships with their suppliers because they have dealt with them for a long time, however, the relationship can still be transactional in these cases because the suppliers are still powerful and dominating. Hence, dealing with a supplier for a long period does not always mean a favourable relationship. For instance, the owner of Firm C said:

> 'Some of them we have had a relation with since we started this business. Maybe since the last 10-12 years, and others, we have just started to develop the relation… There are some incidents when I was either frustrated or angry with my suppliers but I have tried to keep myself cool and handle the situation… They are big and I am small, you see.' (Owner, Firm C)

Firm E, however, said that it can be a two-way relationship, and the suppliers will help those who help them. Firm E said:

> 'When I go to see them, I don't only wait for them to do all the work. I browse the internet and get some pictures of the goods online and show them that these must be the fashion or this must be trendy, and they need to bring in these types of goods or something similar. And then they will agree or disagree. But they don't have time and they don't have aaa… Because they are so busy running around to various places to collect various lines, so nobody's got time… So, probably they will charge me 50 pence less than to any other customers.' (Owner, Firm E)

Good relationships can also be due to many years' experience in this field, as Firm E said;

> 'I don't treat them as the supplier or just some wholesaler. We have a two-way relationship and this is how I am maintaining the relationship. I think it is to do with my long experience in this field I understand them so well, maybe other new retailers or the retailers who are not very long in this field are not doing this or even do not have an idea that they need to do this.' (Owner, Firm E)

As indicated by Firm E, some support is provided by the suppliers because the firm could maintain a favourable relationship with their suppliers. However, as explained in Table 7.15, the majority of the help and support the studied businesses received was based on the standardised terms and conditions provided by the suppliers, and was not due to their mutual understanding. For instance, the owner of Firm A on the storage set up by their supplier said:

> '… like one of our sale or return goods is magazines and newspapers. We have been given a box where we can put all the unsold and excess goods in this box overnight and place this in the blue box outside which has been set up by our supplier… this is based on the terms and conditions we have with them, which they provide to all their buyers.' (Owner, Firm A)

As mentioned in Table 7.15, firms receive help and support from their suppliers based on the terms and conditions they have with their supplier. For instance, as explained in Table 7.15, all the firms have terms of returning some of their accumulations to their suppliers. This assistance provided by the suppliers is, however, a relief for the company, as they can have at least some support from their suppliers even if the support is just based on standardised terms and conditions. This could be the reason why most of them indicated that they have no resentment but have compassion towards their suppliers. As indicated in Table 7.15, even if they are not mentioned in the terms and conditions, there is still a certain degree of help and support from the suppliers. This support is the result of the favourable relationship they maintain with their suppliers. Nonetheless, it can be argued that the standardised help and support related to the terms and conditions cannot be mixed with the support received due to having a favourable relationship with the supplier, even if this relationship has a positive effect on RL performance.

It is understandable that it may not be feasible for suppliers to provide all the help and support needed. However, as mentioned in Table 7.15, there is some support that suppliers do not provide which can create an adverse consequence, both economically and environmentally. For instance, all the firms indicated that their suppliers compensate the goods, but there are cases where they do not physically retrieve the goods after compensation, but leave the goods with the businesses

to manage or dispose of. For instance, the owner of Firm A said: 'Usually they don't take it away, they ask us to dispose of this ourselves' (Owner, Firm A). Businesses are not motivated to keep or manage these unwanted goods for which they have already received compensation. Consequently, they throw these goods away. For instance, the owner of Firm A said:

> 'Because we have to, there is no choice as they are compensated but not taken back by our suppliers, and once it gets outdated there is no choice so we just throw it. Due to health hazards, we don't sell it.' (Owner, Firm A)

This tendency has the chance to create both economic and environmental adverse effects. Nevertheless, this behaviour from suppliers is a 'burdensome act', which is one of the strongly emerging themes in this study.

Firms like A, C, E, and F have all had dialogue with their suppliers about the goods that accumulate in the reverse channel and the others did not think it would be beneficial. However, the companies also revealed that the dialogue was sometimes fruitful, and other times was not. Owners of firms like Firm C did not even want to talk to them, as they said: '*no, no, because we believe that they do not provide this help, its worthless to talk to them*…' (Owner, Firm c). The owner of Firm E revealed that the result can be both good and bad, as they said: **'***… this advice sometimes works and other times not*' (Owner, Firm E).

As explained in Table 7.1, some firms received advice from their suppliers on issues related to RL. Interestingly, Firms C, E, and F indicated that they also provide advice to their suppliers on issues related to RL. It was found that firms who provide effective advice to their suppliers are more likely to get support from the suppliers in return. For instance, the owner of Firm E said:

> 'I have been longer term in retail, probably longer than they have been. It's more like a friendship so they give you advice and you give them advice, because they are not retailers, they are not sitting here and talking or interacting to the end consumers. It's we who get to interact with the consumers and will provide the feedback to the wholesalers or our suppliers and this is how our suppliers are making money, because of our advice as well. If they are happy with you or if they think your suggestions or advice is working for them, they are likely to be happy with you and provide you good discount or even suggest you the best lines. So, if you do this to them or the year a couple of times then they… aaaa… I mean, it's a two-way activity, you got to make them happy and satisfied if you want to get this from them.' (Owner, Firm E)

It can be summarised that whether it is based on terms and conditions, or based on favourable relationships, supplier support is one of the most heavily used resources used by the studied

businesses to build capabilities for RL. Businesses value the help and support received from their suppliers, even if most of it is based only on the standardised terms and conditions, as this help and support, to some extent, helps them recover the value of their accumulated products which would otherwise be impossible or costly to process. Hence, firms may need to learn about how to create favourable relationships with suppliers, which would increase the chances of getting extra help and support from suppliers in reversing their logistics.

7.4.2 Goods Accumulation

RL starts with the accumulation of goods in the reverse channel, and it becomes necessary for the business to acquire knowledge about accumulation prior to processing them. Hence, as per the research question, it becomes imperative to understand whether the business has the capability to understand these accumulations. As explained in Table 7.16, all the firms have knowledge of the goods accumulating in various categories, along with their reasons. For the goods in the 'unsold and excess' category, the owner of Firm B said:

> '…we mostly sell electrical home appliances, and there are some goods, even if they are used all year long, their selling either decreases in particular months, and some other months their selling increases dramatically. For example, the fridge freezers selling increases during the summer, whereas their selling decreases during the winter.' (Owner, Firm B)

As highlighted in Table 7.16, most goods for all the companies accumulated in three main categories: 'unsold and excess' category; 'customer return' category and in the category of 'damaged/broken/faulty/expired'. The table also demonstrates the reasons for the accumulations, as explained by the firms. This knowledge will provide them with suggestions regarding the type of accumulation they may have, and the types of decisions they need to make in terms of managing, extracting value, or choosing an appropriate disposal option. For instance, for their unsold and excess goods, the owner of Firm A said: '*There are certain goods we sell which we have on a sale or return basis, they go back. Unsold goods because they gone out of date, go back to the supplier*' (Owner, Firm A). On a similar note, the owner of Firm B said: '*If it is new goods they do not have to come back to me as the new goods supplier/dealer will directly deal with them, if anything goes wrong with it*' (Owner, Firm B).

As presented in Table 7.16, there are some categories where there is no accumulation, as the businesses did not have knowledge about these accumulations. It was expected that Firms A, C,

and F would be knowledgeable of take-back legislation for used batteries, as they sell batteries. However, they all mentioned that they do not have goods accumulation in this category, because they do not have the knowledge on this. For instance, the owner of Firm A said: '*take back goods due to legislation? Aaaaammm… what something that's, something become illegal or… something like that.... No, we are not aware of this, is there anything like this?*' (Owner, Firm A).

This either reflects the inability of the studied businesses to acquire knowledge, or reflects the poor implementation of the policy by the policy makers. Nevertheless, not having the ability to take back goods, even if it is in the legislation, will result in risk to health and the environment.

Small business size has strongly emerged as a theme for most of the companies as a reason for not accumulating goods in some of the categories. Firms A and C both said that they do not have goods accumulation in the 'own initiative' category because they believe their business is small. For instance, the owner of Firm A said: '*Sorry… we don't do that… as we are only a small business, you see*' (Owner, Firm A). This indicates that the economic, environmental and CSR benefits from goods taken back by 'own initiative' are still not desired by the studied businesses. Firm B, however, had accumulation in the 'own initiative' category, but they did this only for economic benefit and not for any other reason such as those related to the environment. As the owner of Firm B said:

> 'We do take back used electrical appliances from the customers, or from the auction houses, and the places I explained earlier. As you know, my business is about repairing and refurbishing the used stuff, and selling these for profit.' (Owner, Firm B)

Overall, businesses having knowledge on accumulations, with knowledge on the accumulation reasons, will help them to make optimal cost-effective decisions in processing the goods. However, as explained in the above paragraph, lack of knowledge on the accumulations can create an adverse effect, both economically and environmentally. Nevertheless, as demonstrated in Table 7.16, goods accumulation is not only influenced by the knowledge the businesses have or do not have, but is also affected by the economic gain attached to it, the nature of the product, customer preferences, size of the business, and the actions of the customers, staff and suppliers.

Categories in goods accumulation	Firms
Goods remain unsold and excess because their nature are perishable and short date	A, C
Goods remain unsold and excess because they are seasonal or occasional goods B, D, E	B, C, D, E, F
Goods remain unsold and excess because they get obsolete due to change in technology B, F	B, F
Goods remain unsold and excess because of change in fashion and trend D, E	D, E
Goods remain unsold and excess because they are slow moving low demand goods B	B
Goods remain unsold and excess because their supplier send them in big standardised boxes	A, C, D, E, F
Goods remain unsold and excess due to unpredictable demand	A, B, C, D, E, F
Goods remain unsold and excess due to human mistake (no luck) E	E
Goods remain unsold and excess due to differences in customers preferences E	A, B, C, D, E, F
Customers return goods for repair because they are based on warranty returns and they bring economic gain	B
customers return goods for repair because they get damaged/broken	A, B, C, D, E, F
Customers return goods for repair is not accepted because of the nature of the goods	A, C, E
Customers return goods is not accepted because there is no time to process return goods	A
Customer return goods is not accepted due to health hazards	A, C, F
Customers do not return goods for repair because they prefer exchange and not repair	C, D, E
Customer return goods is not accepted because it is costly to process these goods	A, B, C, E
Customer do not return goods for repair because repairing is no more in trend	E
Customer return goods are not accepted because of limited resources	A, C, D, E, F
Customers return goods for exchange because they go damaged/expired	A, B, C, F
Customers return goods for exchange due to wrong purchase	A, B, C, D, E, F
Customer exchange goods because the firm provide them with exchange policy	A, B, C, D, E. F
Customer goods are exchanged for keeping customers happy (economic gain)	A, B, C, D, E, F
Goods get Damaged/Broken/Faulty due to the nature of the goods	A, B, C, D, E, F
Goods get Damaged/Broken/Faulty/Expired because of customers fault	A, B, C, D, F
Goods get Damaged/Broken/Faulty/Expired because of the staff's fault	A, B, C, D, E, F
Goods get Damaged/Broken/Faulty/Expired because of the suppliers' fault	A, B, C, D, E, F
Goods get less damaged due to good care of the owner/manager	A, B, C, D, E, F
Goods are taken back on own initiative because this brings economic gain	B
Goods are taken back on own initiative because this is the core activity related to the firm	B
Goods are not taken back on own initiative due to the small size of the business	A
Goods are not taken back on own initiative due to limited knowledge on this	A, E, F
Goods are not taken back on own initiative because of no economic gain	C, D, E
Goods are not taken back due to legislation because of the small size business	A, D
Goods are not taken back due to legislation because of the nature of the goods	E
Goods are not taken back due to legislation due to not having knowledge on this	A, B, C, D, F
Goods are recalled because suppliers asked to do so	F
Goods are not recalled because of the small size business	A, B, D
Goods are not recalled because of the nature of the goods	C, E
Goods are not recalled because the suppliers did not ask to recall	C, E

Table 7.16 Goods Accumulation in the Studied Businesses

7.4.3 Volume of Goods Accumulation

As explained in Table 7.16, most of the companies were found to have knowledge about most of the accumulation categories. How this knowledge has helped them in processing these goods was discussed in the above section. However, as explained in Table 7.17, the studied firms lacked knowledge of the precise volume of accumulation. For instance, the owner of Firm A said: '*Aaaaaaa [looking confused and hesitant] …aaaa…it is really hard to answer this question, as I will not be able to tell you the exact quantity*' (Owner, Firm A). Table 7.17 informs that the firms had a vague and speculated knowledge on the volume of the goods that accumulated in these categories. For instance, the owner of Firm F and Firm C, on the volume of the 'unsold and excess' goods, said: '*I have had a room full of boxes for the last several years*' (Owner, Firm F). The owner of Firm C said:

Categories of Goods	**Firms' Knowledge of the Volume of Goods Accumulated in Various Categories**					
	Firm A	Firm B	Firm C	Firm D	Firm E	Firm F
Unsold and excess goods	'quite a lot' 'They pile up'	'quite a few' 'in visible amount'	'a lot' '1000 to 1500 worth of goods' 'since last 5 years	'not a lot' '3 or 4 items from a collection'	'400/ 500 garments per year' '2/3 bags to charity per year'	'room full of boxes since last several years'
Customer returned goods	'Not really'	'Four a week'	'1-2 in a day' '3/4 in a week' 'nearly 200 a year' 'quite a volume'	'not a lot'	'2/3 in a week'	'Few in a week'
Goods returned for repair		'quite a few'				
Goods returned for exchange	'no not really'	'quite a few'	'1-2 in a day' '3/4 in a week' 'nearly 200 a year' 'quite a volume'	'not a lot'	'2/3 in a week'	'Few in a week'
Damaged/Broken/ Faulty/Expired goods	'some damaged and quite a few of the expired perishable'	'frequently' '4 a week'	'3 or 4 a week' '200 a year' 'May be 8 or 10 a week' '40 a month' '480 in a year'	'not a lot'	'Not a lot'	'There are some'
Goods taken back on own initiative		'as much as possible' 'quite a lot'				

Table 7.17 Volume of Goods Accumulation in the Studied Firms

> ‘Actually, a lot of those goods I have back in the container and, also in the store… they all remain unsold for some time. Maybe I have goods since last five years, some of it which is not sold, what can I do nothing. I have boxes of goods in the store’ (Owner, Firm C)

It has been found that the businesses understand the accumulations, but in what exact volume was not precisely known. However, as explained in Table 7.16, most goods in almost all the companies accumulated in the ‘unsold and excess’ category.

Not having the capability of acquiring the precise knowledge of the volume of accumulated goods may be a hindrance in terms of knowing what is required to manage, extract value or dispose of these goods.

As shown in Table 7.18, it was found that not keeping the unit record of the goods that accumulate in these categories was the reason behind not having the precise knowledge of accumulations. All the companies kept cash records of the goods they purchased or sold, but did not keep the unit record of the same. As the owner of Firm F said: ‘*No, we don’t keep the unit record but keep cash records*’ (Owner, Firm F). One of the main reasons given by most companies for not keeping records of the goods accumulated in the reverse channel was that it is time consuming, which reflects that the studied businesses may be time constrained. The owner of Firm B said: ‘*No, I don’t think we need this. Its time consuming*’ (Owner, Firm B). This also demonstrates that this task was not important to them. As shown in Table 7.18, Firm A was the only company to keep formal records, but this was for economic reasons. Talking about the record for unsold pasties, the owner of Firm A said:

> ‘I keep a record of what’s not sold - a daily record of what’s not sold, ammm… because at the end of the year it’s quite a lot of money… So anything that goes in that heater, if it is not sold by the time we close up at night, it gets thrown away. But we do keep record of these numbers we throw away just to see how much loss we had to bear, so that we can say to the tax man, at the end of the year, we throw away £2,000 worth of pasties because we’ve heated them and not sold, see…’ (Owner, Firm A)

This demonstrates that the firms are economically motivated to keep records, as all the firms, as explained in Table 7.18, at least kept temporary records, and this was for economic gain. It was assumed that when business grows the accumulation grows, and this may motivate the companies to keep records. However, even Firm E, who has been in the business for the last 35 years and who has been running the current business for five years, said:

> ‘Because I am a small business and everything is in my head, because I am the only person working here. On the other hand, it is time consuming … No, I don’t keep the record but mentally I know…’ (Owner, Firm E)

Record Keeping Tendency of the Studied Firms	A	B	C	D	E	F
Do not have the knowledge of the units of goods purchased	X	X	X	X	X	X
Do not have the knowledge of the units of goods sold	X	X	X	X	X	X
Keep cash records of the goods purchased	X	X	X	X	X	X
Keep cash record of the goods sold	X	X	X	X	X	X
Keep unit record for some goods accumulation in reverse channel for economic gain	X					
Unit record is not kept because it is a waste of time	X	X		X	X	X
Unit record is not kept because it is not important	X	X		X	X	X
Unit record is not kept because it is a day-to-day activity and not the long-term activity	X				X	
Unit record is not kept because owner has this in mind		X		X	X	
Unit record is not kept because there is no need to report to anyone					X	
Speculate the volume	X	X	X	X	X	X
Temporary record is kept for compensation from supplier (economic gain)	X		X	X	X	
Temporary records for the goods come back from customers is kept for customer service (economic gain)		X		X		

Table 7.18 Record Keeping Nature of the Studied Firms

It can be argued that, as business grows, firms may become more familiar with their suppliers and with their goods and therefore may not feel the need to keep records, even if the volume is high. Again, what the owner of Firm E said reflects the characteristics of the studied businesses – small size with flat management structure, with no need to report to anyone. However, not keeping records may work as a barrier to building and developing capabilities related to RL.

The tendency of not keeping records has resulted in companies not knowing the actual volume of the accumulation. Consequently, the firms do not know the extent of the problem enough to realise the actual loss or expenses. Tacit knowledge gained from past experiences to speculate the volume of goods has prohibited them from seeing the actual cost, and in some cases the cost has remained hidden. During the interview, Firm C was prompted to calculate their accumulation, and was astounded by the figures of accumulation, which shows how severe the problem can be, if realised. Roughly calculating the quantity of their customer returned goods, the owner of Firm C said:

> ‘aaa… maybe three or four in a week. Ha… ha…ha… (laughs), again I never calculated this annually. If its 16 a month than its nearly 200 a year. Yes, this is quite a volume… Oh my god I did never calculate this like this. It is a lot, isn’t it? I have just realised.’ (Owner, Company C)

This indicates that the studied businesses may need more knowledge on this, and the realisation can be aroused by simply talking to someone knowledgeable about the issue.

Precautionary/Preventive Measures used by the Studied Firms	A	B	C	D	E	F	Total
Stock fewer goods to avoid or lessen unsold and excess goods	2	2	1	0	1	0	6
Stock long life goods to avoid or lessen unsold and excess goods	1	0	0	1	2	0	4
Inspect new deliveries to avoid or lessen damaged/expired/broken/faulty goods	5	6	1	3	2	3	20
Tighten returns policy to avoid or lessen customer returned goods	4	1	5	7	3	4	24
Stock quick turnover goods to avoid unsold and excess goods	1	1	1	3	9	0	15
Quick turnover/sale to avoid unsold and excess	1	1	1	4	1	0	8
Keep good account of customers to avoid or lessen damaged/expired/broken goods	1	0	0	0	2	0	3
Dialogue with the supplier (receiving the advice from the suppliers or giving advice to the suppliers) to avoid unsold and excess goods	33	00	01	50	41	11	136
Instruction to customers avoid or lessen damaged/expired/broken/faulty goods	0	2	0	7	0	1	10
Not forcing customers to avoid customer returned goods	0	0	0	0	2	0	2
Training staff to avoid or lessen damaged/expired/broken/faulty goods	0	1	1	0	0	1	3
Life-cycle-assessment to avoid or lessen damaged/expired/broken/faulty goods, and unsold and excess goods	2	4	0	1	2	2	11

Table 7.19 Preventative Measures Used by Studied Firms

As shown in Table 7.19, the studied firms were found developing their capabilities in using the preventive measures. They used preventive measures to lessen or avoid the accumulations, so that they can avoid or lessen the costs related to this. For instance, one of the more heavily used preventive measures was the 'tighter returns policy'. About using this measure, the owner of Firm D said:

> 'I had a gentleman who had bought a coat from us which was quite expensive, as it was 80% wool and he returned, and he came after two weeks of purchase. And he knew, he asked me in the first place, how many days have a got to return it if wasn't OK for my wife. And I said its five days and it needs to be in a condition that I can sell it on later. He came back with his coat, it was two weeks after, he did not have his receipt and he … and the coat was in bad condition due to pet hair been all over it, with wool stuck to it. So, and the gentleman was trying to convince me that he will give it to the dry-cleaning team and I can do with it as he will pay for it. But, unfortunately, I can't consider that product as the new product, it's been used, it's been washed, I can't do it. And of course, he wasn't the happiest, but he could understand my decision. Because in the first place I had informed that that kind of procedure is what we are going to be. So, he wasn't too happy, but he accepted it. He had to take the product away with him because I could not take them in.' (Owner, Firm D)

Likewise, inspecting/sorting/selecting new deliveries as precautionary measures to avoid damaged and broken goods, which will again help in avoiding further costs, was a capability developed by the firms. For instance, the owner of Firm A said:

> '…when the new deliveries arrive, we inspect the goods and sort and select for any unwanted goods, for example for the wrong deliveries, for damaged or if it is food items for date expired goods. This will help in avoiding future hassle.' (Owner, Firm A).

For similar reasons, Firm B used the precautionary measures of 'stock quick turnover goods' to avoid unsold and excess goods. As the owner of Firm B said:

> 'Like, for unsold and excess goods, we try our best not to buy too much of the goods at a time. I also try knowing more about the products, so that I buy only those that can be sold. You have to listen to what customers want, you see... Like, I need to keep eye on what's coming up. Like when Christmas is coming up I buy more fridges and freezers. Like, I try buying chest freezers where people can store their surplus foods…' (Owner, Firm B)

In using these measures, companies were observed using their tacit knowledge gained from past experiences. Through their past experiences, firms have realised that using these preventive measures will help them either in economic savings or economic gain.

The precautionary measures have emerged as a strong theme in this study. However, these measures may not have worked as desired. For instance, Table 7.19 shows that firms have been using precautionary measures to avoid or lessen the goods accumulation in the 'unsold and excess' category, but, as shown in Table 7.16, most of the goods for almost all companies accumulate in the 'unsold and excess' category. Nevertheless, it can also be argued that if they did not use the capability of precautionary measures, the volume would be even higher. This also provides evidence that, even though small, the goods accumulation in these businesses can be substantial, resulting in serious cumulative economic and environmental consequences. On a similar issue, Table 7.16 shows that much of the goods do not accumulate in the 'customer return' category, even when companies provide a returns policy to their customers. Interestingly, as shown in Table 7.19, it was revealed that while firms have returns policies, they are rather tight, and not liberal. Consequently, they do not take everything and anything back from their customers; rather, they ask questions and look for hard reasons before making take-back decisions. Measures like tighter returns policies may have helped in developing the capability, which would again help in avoiding or lessening the accumulation in the 'customer return' category. However, this tendency can result in distancing themselves from potential customers,

leading to lower competitive power and lower market share. It can be concluded that the precautionary measures as a capability, although emerging as one of the core themes, sometimes may not provide the desired result, and other times may provide adverse results without the businesses realising it. Hence, the businesses need to carefully analyse the long-term effect of their developed capability, and not just be captivated by its short-term gain.

7.4.4 Processes in Reverse Logistics

Section 7.4.3 explained that even if businesses use precautionary measures, goods still accumulate in various categories in various volumes. The firms now need to have the capability of processing these goods in the most cost-effective way. This section will explain the capabilities the firms have developed for transporting/moving, warehousing/storing, and for sorting/selecting/inspecting. This section will also explain how firms address/perceive the cost of going through these processes.

7.4.4.1 Transporting/Moving Goods

As shown in Table 7.20, all the firms knew that transporting the goods from one place to another, storing/warehousing, and sorting/selecting/inspecting were involved in the process of reversing logistics. For instance, for transporting/moving goods, Firm E said: '*yes, I will have to take it back to the wholesalers back to London, Manchester, Paris*' (Owner, Firm E). The owner of Firm B said they need to transport/move the goods because: '*these goods may need to be collected from the customers, get it repaired, and again take it back to the customers using our vehicle*' (Owner, Firm B). The owner of Firm C said the unwanted goods need to be transported/moved to the store because the store is not near and: '*It's a separate building at the rear, maybe around 200 metres*' (Owner, Firm C).

As explained in the above quotes and in Table 7.20, all of the companies had to get involved in carrying goods from one place to another for various reasons. Besides the businesses doing this themselves, supplier involvement is also seen in Firms A, B, C and F. Hence, the resources as supply chain relationship is used by some of the studied firms. Firms D and E carried the goods back to their suppliers, as their suppliers were not involved in carrying this for them.

Transport/movement reasons	To take the goods back to the supplier	A, B, C, D, E,
	To carry the goods in the store	A, B, C, F
	For own initiative take-back	B
	To deliver back to the consumers after repair or exchange	B
Transport/movement done by	Owner /supplier	A, B, C, F
	Owner	D, E
Warehousing/storage reasons	To store the damaged/expired goods till it's taken back to the supplier	A, B, C, D, E, F
	To store the wrong deliveries till it's taken back to the supplier	A
	To store the unsold and excess goods to sell next year	B, C, D, E, F
	To store the goods that is to be taken away by scrap people	B
	To store the spare parts	B
	To give to charity	E
Warehousing/storage done by	Owner/supplier A	A
	Owner	B, C, D, E, F
Sorting/selecting/Inspecting reasons	Before buying	A, B, C, D, E, F
	To check new deliveries	A, B, C, D, E, F
	After customer bring back	A, B, C, D, E, F
	To check the damaged/expired.	A, B, C, D, E, F
	To check the unsold excess	A, B, C, D, E, F
Sorting/selecting/Inspecting done by	Owner/Supplier	A, B, C
	Owner	D, E, F
	Specialist Engineer	B

Table 7.20 Processes Involved in Reverse Logistics

All the firms, however, mentioned that they do not travel to go to their supplier just for the sake of taking these goods back, but go there when they need to see their suppliers for their next purchase or pick up. This shows that firms are using measures to avoid the related costs. As the owner of Firm C said:

> 'yes, as I said that suppliers will take this back, but sometimes when we have to go to the cash and carry we carry these goods and take these back to the supplier - only if they are local suppliers. I use my own car to do this.' (Owner, Firm C)

This explains that there is no visible/known cost involved but firms use measures to avoid the cost. Firm B was the only company who was also involved in transporting the goods to the customers from the shop, and transporting it again from the customers back to the shop area.

Firm B did this as this was related to their core business activity. This has required Firm B to own their own business van as a physical resource to build the capability required to RL.

7.4.4.2 Warehousing/Storing Goods

As explained in Table 7.20, all of the firms had to store goods in various categories for various reasons; hence, there was the need to build capability related to storing accumulated goods. Firms B, C, and F developed the capability of having a large separate storage area to store their piled-up goods, as they had been running the business for many years. Owner of Firm C said:

> 'Actually, a lot of those goods I have back in the container and also in the store. Maybe I have goods since the last five years, some of it which is not sold, what can I do nothing. I have boxes of goods in the store.' (Owner, Firm C)

This indicates that Firms B, C, and F have extra costs involved in storage, as they have invested in separate storage space. Firm D, who was a newly established business, did not have separate storage, but they bought small plastic boxes to store their unwanted goods which they had purchased separately. However, they revealed that the conditions might change, as the owner of Firm D said: '*We do not need a store now, but maybe after some time we may need a store to hold on these goods for some time, as the business grows…*' (Owner, Firm D). Firm A had a tiny storage space at the back of their shop, and this was the only firm whose suppliers had set up a storage area for storing their unsold and excess newspapers and magazines, outside the shop area. As the owner of Firm A said:

> 'We have been given a box where we can put all the unsold and excess goods in this box overnight and place this in the blue box outside which has been set up by our supplier.' (Owner, Firm A).

This demonstrates that they are using the supply chain relationship as a resource for storing some of their goods. Whenever goods piled up, Firm E gave this to the charity as external resources. However, they stored their yearlong accumulation in bin bags, or in the loft of their shop, until it was given away to charity. This indicates that there was no substantial extra cost involved. Nevertheless, this practice helped to eliminate or reduce costs; however, there is an indication that they used the practice of 'illegitimate behaviour' as a capability to store these goods and, consequently, reduce/avoid these goods. As the owner of Firm E said: '*we store the goods in the loft, but the landlord doesn't know about this as they do not allow to put stuff in the loft. I just do*

this without letting them know' (Owner, Firm E). The use of 'illegitimate behaviour' as a resource to build capability for reversing logistics is, again, another emerging theme in this study.

7.4.4.3 Sort/Select /Inspect /Test Goods

As explained in Table 7.20, all firms also required the capability to sort, select or inspect the goods for various reasons. For instance, the owner of Firm F said:

> 'Yeah, either they remain unsold, get damaged, or come back from the customers, they all need to be checked and sorted to know the conditions of the goods, and to make the appropriate decisions on what to do with them.' (Owner, Firm F)

Except Firm B, all companies did the sorting, selecting, and inspecting themselves. Company B hired a specialist engineer as an external resource to get this done for them, which was again a visible known cost, as the owner of Firm B said:

> 'Yes, as I said that being the electronic nature of the goods, and also being the second-hand or used goods, they all need to be tested and sorted, as it is also in law that we have to make a PAT [portable appliance testing] test.' (Owner, Firm B)

The firms have tried their best to reduce the cost of processing their goods by using resources like tacit knowledge gained from past experiences and supply chain relationships. As explained, for some firms, there are visible costs involved in processing these goods. However, invisible/unknown costs related to time and effort used by all firms for transportation, storage, and sorting/selecting/inspecting cannot be denied. The invisible/unknown costs related to time and effort were evidenced during the observation period. It was also found that in the course of saving costs, companies also used the practice of 'illegitimate behaviour' as a capability to process their goods.

7.4.5 Disposal Options

After processing of the goods, the studied businesses had to use capabilities in selecting the most suitable option for disposal of the goods. Overall, as explained in Table 7.21 and Table 7.22, it was found that the preferred disposal options were the ones which reflect the nature of the small sized businesses, who have limited resources of all types. Hence, chosen disposal options were the ones which they had knowledge of, that were readily available, that they thought would yield economic gain, and that had low or no investment. Consequently, these attributes were reflected in the type of capability they explored and developed in disposing their goods. Hence, the resources they used to build the disposal capability were the tacit knowledge gained from past

experiences, supply chain relationships, time and effort, and external resources like other online channels and charitable organisations. In making economic savings or economic gain, the companies were also found to use the practices of 'unethical behaviour', 'illegitimate behaviour' and 'informal behaviour', which is hidden, but may pose serious consequences which will be explained in the paragraphs and quotes below.

If it is in the policy, the priority was to send the goods back to their suppliers because doing this would provide economic gain without any extra investment, as they get the compensation for doing this. For instance, the owner of Firm B said:

> 'If it's a new goods supplier, as we have some, we have some terms and conditions with them. The goods are provided with a one-year warranty and if anything goes wrong within this one-year warranty they deal with this. They either send the spare parts for repair or take the goods back and compensate us either with credit note or exchange this with new goods.' (Owner, Firm B)

In other cases, the most preferred options were to reduce the price of the goods, move the goods from one display area to another, sell the customer returned goods as new, and directly reuse the goods for personal or business use. These options were either readily available or involved low/no cost. For instance, the owner of Firm D said: '*What we do is if there is some product lying there for some time, we try to put this out in the front, make it visible to people, as in doing so there is no extra investment*' (Owner, Firm D). On directly reusing the product, the owner of Firm C said: '*if the food comes out of the packet then we eat it, but if they are expired then we do not eat it, or may be if the mouse has damaged or eaten then we do not use this*.' (Owner, Firm C).

Directly using the products either for personal use, office use, or friends and family use is another strongly emerging theme.

All the firms reduced the price if the product was defective. The common reason for doing this was economic gain. For instance, Firm E said: '*Simply for return on investment isn't it. We will, at least get, not all, but some of our money back*.' (Owner, Firm E). All the firms also sold the goods 'as new', which came back from the customers. There was no extra capability involved, apart from tacit knowledge gained from past experiences on how to get this done, and they said that they do this for economic gain.

Reasons for Firms Using the Various Disposal Options	
Firms send unsold and excess goods back to the suppliers because they have this in their policy and they do this for compensation (economic saving)	A, C
Firms send back the unsold and excess goods back to the suppliers even if it is not in the policy because the suppliers are big companies	C
Firms send back their damaged/broken/faulty/expired goods to the suppliers to get compensation from the suppliers (economic saving)	A, B, C, D, E, F
Firms throw their goods in bin because suppliers do not take it	A, B, C, F
Firms throw their goods in bin because suppliers are discontinued, and they do not take it	E, F
Firms throw their goods in bin because the goods get outdated	A, C
Firms throw their goods in bin because they are damaged and faulty	E, F
Firms throw their goods in bin because they are small in volume	A, B
Firms throw their goods in the bin if they do not have economic value	B, C
Firms throw their goods in bin if they can't be repaired	C
Firms throw their goods in bin if they do not have time to repair	A
Firms throw their goods in bin if they are not fit to keep	A
Firms throw their goods in bin as a last option	A
Firms throw their goods in bin because government does not help	C
Firms throw their goods in bin if they are anything other than Metal	C
Firms repackage and resell the goods for economic gain	A, C
Firms repackage and resell the goods if the suppliers do not take it back	A, C
Firms repair and refurbish because repairing is related to the core business aspect;	B
Firms do minor repairing & refurbishing for economic gain	A, B, C, D
Firms do minor repairing & refurbishing because suppliers do not take back	D
Firms do minor repairing & refurbishing because of Core business aspect; Warranty Repair; Damaged broken	B
Firms give away their goods to the recyclers and dismantlers if goods do not have economic Value, and, if this results in economic savings	B
Firms sell the goods brought back by the customers as new for economic gain	A, B, C, D, E, F
Firms sell the goods brought back by the customers as new for economic gain	A, B, C, D, E, F
Firms directly use some of the goods that are damaged, or unsold & excess if they can be used for personal use	A, C, F
Firms directly use some of the goods that are damaged, or unsold & excess if they still got economic value	A, B, C, D, F
Firms directly use some of the goods that are damaged, or unsold & excess if they can be used for business use	B, C, F
Firms directly use some of the goods that are damaged, or unsold & excess to give away to friends and family for social recognition	A, B, C, D, F
Firms sell their goods by reducing its price for economic gain purpose	A, B, C, D, E, F
Firms sell their goods by reducing its price because of the nature pf the product (they get obsolete or expired)	A, B, C, D, E, F
Firms sell their goods using outlets like eBay and Gumtree for economic gain	B
Firms sell their goods using outlets like Facebook and website for economic gain	D
Firms gave away their goods to the charity because they have no extra storage	E
Firms gave away their goods to the charity because there is economic gain (tax rebate)	E
Firms use the technique of cannibalisation to manage the accumulation for economic gain	D, E
Firms try selling the goods by changing their display area because this enhances viewing and creates economic gain	A, B, C, D, E
Firms believe government should help them in tackling these goods	C

Table 7.21 Reasons for Firms Using Disposal Options

One of the most common reasons for selling the customer returned products as new, as said by the owner of Firm C, was because there was no problem found in the goods. '*Once I know that the product is fit to sell as new then only I sell these as new. If there is no problem found in the product it is always goods to sell as new and this is how we do business*.' (Owner, Firm C).

Firm B was the only company to have goods tested by a certified engineer before they sold the goods as new. However, other business did not do this using an expert, but did this themselves, and this was because they did not require expert testing by law. However, there could be some ethical issues in selling the goods as new, which has been returned by customers. Hence, the practice of 'unethical behaviour', as a capability, was found to be used for disposing the returns, which is another strongly emerging theme for this study. Firm F, who dealt with electrical and electronic goods, were more hesitant to use the option of 'sale as new', due to the nature of the goods as the owner of Firm F said: '*customer returned goods may have some defect on it which may pose a health risk, and therefore can't be sold as new'* (Owner, Firm F). Firm B was the only firm who fully utilised the repairing and refurbishing option, as this was related to the core activity of their business which was again due to economic reasons. The owner of Firm B said:

> 'Actually, apart from buying new goods, buying used or second-hand goods or buying the dented or scratched goods is the nature of our business. We must deal with these goods. As we buy these goods to repair/refurbish and then sell this for profit.' (Owner, Firm B)

The availability of the other options, and not having resources, were the most common reasons for other firms for not using this option. However, there was the case of not heavy, but minor repairing or refurbishing in Firms A, B, C, and D. The common reason for doing this in these companies was for economic gain and economic saving, as these were low or no cost options.

Firm B was the only company who gave away their unwanted appliances to the metal scrap people. Products which they believed had no economic value would be given away to the scrap people, but they also did this to save money. The owner of Firm B said:

> 'to throw it in the bin costs money as well - you get bills. To pay the bills why should we throw it away or give to the recycle company to pay the bills? Why should we pay the bills, to pay the bill for the bin or the recycle company, so we give it to the scrap people who collect for free…' (Owner, Firm B)

During the interview, it was also revealed that these scrap people would extract the metal from these products and sell for profit. However, the owner of Firm B said that these people handle these materials informally:

'….they say these contain harmful chemicals, which should only be handled by an expert. But what can I do? I have no choice' (Owner, Firm B)

This demonstrates that the practice of 'informality' is used as a resource to build capability to manage their unwanted goods. This is yet another strongly emerging theme for this study.

Firm E was the only company who gave away their years' accumulation to charity as external resources. They gave unsold and excess goods to charity because they had no extra storage space to store these yearlong accumulations, and they also said they do this for economic reasons. The owner of Firm F said: '*we just give it to charity, as there is no extra investment in doing so*.' (Owner, Firm F). This demonstrates that giving away to charity does not always mean being social and ethical, but is to save money. Hence, external resources like charitable organisations can be considered as external resources, used by this firm to build capability to dispose of these goods.

Firms B and D were the only ones to show the capability of using outlets or other channels as external resources to sell their goods. The owner of Firm B said: '*we sell it on eBay and Gumtree*' (Owner, Firm B). On selling from another channel, the owner of Firm D said, '*Yeah, we have put it on Facebook and now we are trying to get a website running*', (Owner, Firm D). Firm D, however, revealed that running a website was costly, as the owner of Firm D said, '*it is not just about setting up a website, it's about boosting it and advertising the website, which costs a lot*' (Owner, Firm D). Both firms were observed using either their phone or computer most of the time for updating and processing these channels. This demonstrates that there is huge investment of time and effort as resources, which can again be considered as a hidden cost. Firm C was the only firm who believed that the government should provide some help with these issues.

As shown in Table 7.22, none of the firms used the option of recycling and remanufacturing, giving to brokers, or sending back to a CRC. The reasons they mention clearly shows that they are small and resource constrained, as well as lacking the knowledge. For instance, the owner of Firm A said, '*oh, we are just a small business working for our living, this is for the large businesses who have large turnovers and big profits, and also who are the ones responsible for all the problem, I think*' (Owner, Firm A).

Reasons for Firms Not Using the Various Disposal Options	
Firms do not send their unsold and excess goods back to their suppliers because this is not in the supplier's policy	A, B, C, D, E, F
Firms do not send the damaged/broken/expired goods back to the suppliers even if it is in the policy if time does not persist	C
Firms do not send the damaged/broken/expired goods back to the suppliers even if it is in the policy if products are found damaged due to customer's fault	C
Firms do not send the damaged/faulty/expired goods back to the suppliers even if it is in the policy if products are found damaged due to customer's fault	C
Firms do not put/throw their goods in bin if other options are available	A, B, C, D, E, F
Firms do not put/throw their goods in bin if putting/throwing in the bin cost them extra money	B, C
Firms do not throw the goods in bin because they are new business and have not yet got the goods accumulation	D
Firms do not repackage the goods and sell because of the nature of the goods	A, B, D, E, F
Firms do not repackage the goods and sell because suppliers take this back	A
Firms do not repackage the goods and sell because Suppliers have already packed this	B, D, E, F
Firms do not repackage the goods and sell because Other options available	A
Firms do not repair or refurbish if other options are available	A, C, D, E, F
Firms do not repair or refurbish because they do not have resources	A, C, E, F
Firms do not repair or refurbish because of small volume	D
Firms do not repair or refurbish because they are not fit to do so	A
Firms do not repair or refurbish because they are not in trend	E
Firms do not repair or refurbish because in doing so there is no economic gain	F
Firms do not do minor repairing and refurbishing because of health hazards	F
Firms are not involved in recycling and remanufacturing because they are small in nature	A, C, D, E, F
Firms are not involved in recycling and remanufacturing because they have no knowledge of this	B
Firms are not involved in recycling and remanufacturing because of; no economic gain; no resources; no motivation	E
Firms do not recycle but assist in recycling	A
Firms do not give away their goods to the recyclers and dismantlers because they are small size	A, B, C, E, F
Firms do not give away their goods to the recyclers and dismantlers because they are small size	D
Firms do not give away their goods to the recyclers and dismantlers because other options are available	D
Firms do not give away their goods to the recyclers and dismantlers because they are time and knowledge constrained	E
Firms did not use brokers to give away their goods because they have no knowledge on this	A, B, C, D, F
Firms did not use brokers to give away their goods because of their small volume	A, E
Firms did not use brokers to give away their goods because they have no time to do so	E
Firms did not use brokers to give away their goods because suppliers take this back	A
Firms do not sell the goods brought back by customers as new because of health risks	F
Firms do not directly use some of the goods because of the health risks attached to them	A, C, F
Firms do not directly use some of the goods because this is not a social act (friends and family won't take it)	E
Firms do not Incinerate their goods due to health hazards	A, E, F

Firms do not incinerate their goods because it is not in trend	A, F
Firms do not have the privilege to send the goods back to the Central Returns Centre because they are small in size	A, B, C, D, E, F
Firms do not sell their goods using outlets or any other channel because they are small and resource constrained	A, C, E, F
Firms do not give away their goods to charity because they are small and have low volume	A
Firms do not give away their goods to charity because of health risks	A, B, F
Firms do not give away their goods to charity because they have no knowledge on this	C
Firms do not give away their goods to charity because other options are available	B, D
Firms are reluctant to send their goods to charity because they have no faith on them	B
Firms do not use the technique of cannibalisation to manage the accumulation because they have no knowledge of it	A, B, C, F
Firms do not sell goods by changing their display area because goods are not related to fashion	F

Table 7.22 Reasons for Firms Not Using Disposal Options

Throwing in the bin, which was one of the unsustainable ways of dealing with these products, was used by most of the firms, as they did not have choice and there was no extra investment in doing so. For instance, the owner of Firm F said:

> 'I have had products since the last few years. We have discontinued with some of the suppliers - either we have fallen out with them, or they don't operate any more. Goods being technological are getting outdated and obsolete, which we are unable to sell. There is no option left, other than throwing them, as this does not cost us money, you see [showing the domestic bin].' (Owner, Firm F)

Most of the firms revealed that the suppliers compensate, but do not physically take the damaged goods back, resulting the product ending up in the bin. As the owner of Firm B said:

> 'We get credit for these goods. Like, if there are any problems with the goods like sometimes a door is smashed, we can get a new door from the manufacturer. But the door that is smashed is not physically taken away by the manufacturer, we will have to arrange for its disposal… We simply have to put this in bin.' (Owner, Firm B)

Again, the suppliers not physically taking the goods back can be considered as a 'burdensome' act from the suppliers, which results in the increased cost of disposal. As the owner of Firm B said:

> 'I have a bin collector who collects the bin with the plastics, glasses, and also packaging that comes with the products. I will have to pay this bin man to collect this for me. I will also have to use some space to store this till this is collected by the bin people.' (Owner, Firm B)

The firms, however, revealed that throwing in the bin was the last possible option they would use, but during the observation period it was seen that they frequently threw their goods in the bin. They did this because they believed that there was no extra cost involved in this. Overall, as they

believe and as demonstrated in Table 7.21 and Table 7.22, the studied firms were found choosing those disposal options of which they had knowledge and were readily available, that they felt would yield economic gain, and that had low or no investment, which reflected their small size. The choice of disposal options used by the studied firms also depends upon the nature of the goods, suppliers attitude, age of the business, social recognition, and the firm's policy.

Consequently, firms were found using both tangible and intangible resources to build and develop the capability for disposing the goods. The resources used the most heavily to build capabilities were: tacit knowledge gained from past experiences; supply chain relationships; time and effort; and other external resources like online channels and charities. In doing so, firms were aware of some of the costs; however, there were some costs which remained hidden. For making economic savings or economic gain, the firms were also found using the practices of 'unethical behaviour', 'illegitimate behaviour' and 'informality' as capabilities, which were hidden, but which could pose serious consequences in the future.

7.4.6 Time Required

It was good for the firms to develop the capability to manage, extract value, and dispose of the accumulations as soon as possible, as staying longer means increased cost. Hence, it was important to understand the period required by the firms, and establish whether the firms had the capability to reduce the time required. None of the studied firms could provide a definite time scale required to manage, extract value or dispose of these goods. However, using their tacit knowledge gained from past experiences, they provided some speculated idea about the time scale required. Table 7.23 presents the speculated time scale used by the firms in their own words, which was again based on the tacit knowledge gained from their previous experiences. As explained in Table 7.23, it was understood that the times taken can range from a few days to a few weeks, or even a few years. In some cases, there was no time limit, and could take any amount of time, increasing the costs. For instance, the owner of Firm A said: '*maybe a few days or weeks, it all depends upon the type of the goods'* (Owner, Firm A). Again, for the same issue, the owner of Firm B said:

> 'Unsold and excess goods would lay there for some time unless a customer came along, liked the product, and bought it, and this would either take very short period or very long. For instance, the seasonal goods may take at least another year to sell.' (Owner, Firm B)

Goods category	Time Required for Each Firm					
	A	B	C	D	E	F
Unsold and Excess Goods	Few weeks (perishable goods need quick mgmt.)	Very short period or very long - at least another year	- Last 5 years - Last 2 years - A long time - Tomorrow, day after tomorrow or two months	- Until next year - 2-3 months	- At least a year	- Maybe 10-12 years
Goods come back for repair		- A day or a two - Longer to process - As soon as possible - More than a week				
Goods come back for exchange	Any time	- A day or a two - Longer to process - As soon as possible - More than a week	- Not for long - 2-3 or 4 months - A month or two months' time	- Never know - anytime	- No time limit, anytime	- Anytime - Maybe 2, 6 or 12 months
Damaged/broken/ faulty/expired goods	- A few days or weeks - Next supplier visit	- A week or two - Next supplier visit	- 2 to 3 months - Next supplier visit	- 2 months or every 3 months	- At least a month - Next supplier visit	- At least a month - Next supplier visit
Goods taken back on own initiative		- Longer and some may be for short period				

Table 7.23 Time Required by Studied Businesses

The goods that came for repair or exchange were processed as soon as possible by all the firms, and the common reasons for doing this was customer satisfaction leading to economic gain. However, there was no precise time for managing the goods left by customers for exchange, and this could take any amount of time. As indicated in Table 7.23, among all the firms, Firm A took the shortest time to extract value, manage and dispose of unsold and excess goods, as they dealt with the short dated perishable goods which need quick disposal. This means that nature of the goods can be one of the factors that determines the time required. However, Firms B, D, and E took at least a year, and Firms C and F took a bit longer than any other firms. All the firms had to wait until they met their suppliers to get compensation for their damaged/broken/expired/faulty goods, resulting in the goods staying longer with them due to suppliers. As the owner of Firm A said: '*we will have to wait for these suppliers to visit next time, and exchange or compensate these for us.*' (Owner, Firm A). For a similar issue, the owner of Firm D said:

> ‘depends on the how well the collections are selling. Because we don’t have a fixed time that we go to see our suppliers, every two months or every three months. We just go when we feel the need - when I see the shop is getting empty.’ (Owner, Firm D)

It was also found that seeing suppliers in two months’ time means there are hidden costs involved. The owner of Firm D said: ‘*So this also means that my money is tied up for two months*’ (Owner, Firm D).

The observation and semi-structured interview revealed that products staying longer with the firm resulted in an increment of the costs which were not all visible to the firm. For instance, products staying longer occupy storage space for a longer time, resulting in increased storage costs. Staying longer also increases the likelihood of the product becoming obsolete/expired/outdated, which again diminishes the value of the product, costing the company indirectly. Lastly, products staying longer have more chance of getting damaged and broken because they are constantly pushed and pulled, backward and forward. The timescale was speculated based on the tacit knowledge gained from past experiences. Firms were helpless and did not have the capability to know the precise time required, neither could they process the goods as quickly as possible, resulting in the rise of hidden costs.

7.4.7 Transaction Costs

The findings show that the studied businesses worked on paying the costs that were either visible or known to them. Nevertheless, as presented and analysed in Appendix J and in Tables 7.24, 7.25 and 7.26, three various cost facets prevailed in the studied businesses: cost avoidance, known/visible costs, and hidden costs**.** As presented and analysed in Table 7.24 and Appendix H, the studied businesses were found giving priority to using various precautionary measures to either avoid or lessen the costs of RL. This could be due to their resource constrained nature. For instance, Firm E used an illegitimate approach to avoid costs. Firm E stored their goods in the loft of the shop, even though their landlord did not want them to do this. Illegitimacy, as a resource presented in Table 7.24 and Appendix H, is one of the newly emerging themes for this study. Studied businesses were then found using various measures to compensate for those costs that were known to them. For instance, Firm B used an external source – a specialist engineer – to test their used and second-hand goods, which was a known added cost to this firm.

Methods Used to Avoid/Reduce Costs of Reverse Logistics by the Studied Businesses
• Using time and effort to avoid/reduce costs (insource) • Using tacit knowledge gained from past experiences to reduce/avoid costs (insource/outsource) • See suppliers in the next visit, and not travel just for the sake of it to reduce/avoid costs (insource) • Use suppliers' transport system to avoid/reduce costs (outsource) • Use supplier' set up storage to avoid/reduce costs (outsource) • Use Illegitimate tactics to store to avoid/reduce costs (insource) • Use unethical disposal options to avoid/reduce costs (sell as new (insource) • Use informal disposal options to avoid/reduce costs (scrap people) (outsource) • Use charity rather than storing to avoid/reduce costs (outsource) • Use low cost, readily available, or no or less investment disposal options to avoid/reduce costs (insource) • Have dialogue with the supplier to avoid/reduce costs (insource/outsource) • Use various precautionary measures to avoid/reduce costs (insource)

Table 7.24 Methods Used to Avoid/Reduce Costs

However, based on the data collected through both semi-structured interviews and participant observation, it was also found that various costs remained hidden and unknown to the firms. For instance, as shown in Tables 7.23 and 7.26 and Appendix H, the studied businesses used a considerable amount of time and effort, as resources, in sorting/selecting/inspecting/testing without realising, which can be considered as a hidden cost. In some cases, these hidden costs, as explained in Table 7.26, had the chance to bring adverse repercussions in the future.

Known/Visible Costs of Reverse Logistics
• Business transport system is used (insourcing) • Proper storage is used (insourcing) • Specialist engineer for sorting/selecting/inspecting/testing (outsourcing) • External entity as a bin man for throwing the goods in bin is used (outsourcing) • Materials for repackaging is used (outsourcing) • Time and effort for repackaging is used (insourcing) • Materials for repair and refurbishing is used (outsourcing/insourcing) • External entity as specialist engineer used for repair and refurbish (outsourcing) • Materials used for minor repairing (outsourcing) • Other channels like Facebook, eBay and Gumtree used for disposal (outsourcing) • Cleaners used for disposal (insourcing)

Table 7.25 Known/Visible Costs of Reverse Logistics

For instance, as presented in Appendix H, Firms A and C did not know about battery take-back law, even though they were selling batteries. Likewise, firms lacking knowledge of 'own initiative' take-back had the chance to result in hidden costs related to the danger of bringing adverse effects, both environmentally and economically.

Nevertheless, it was also found that the resources and capabilities used to build capabilities related to RL, and the way the studied businesses addressed/perceived costs, overlapped with each other. For instance, as presented in Table 7.24, firms used precautionary measures as one of the intangible resources to build capabilities for RL. The same precautionary measures, as

Factors Leading/Triggering Hidden Costs	Hidden Costs for Reverse Logistics
No knowledge of accumulation	Lack of knowledge of the long-term consequences
No precise knowledge of the volume of goods	• Lack of knowledge of the long-term consequences • Hidden resources cost
No precise knowledge disposal options-non-optimal disposal costs	Unknown disposal options Cost
Unknown time and longer time required	• Costs of goods getting unsold, obsolete and damaged due to longer stay • Costs of longer use of storage space
Processes of reverse logistics-transportation, storing and sorting/selecting/inspecting/testing costs	Hidden resources cost
Throwing the goods -economic and environmental costs	Lack of knowledge of the long-term consequences
Illegitimate, informal and unethical behaviour-related costs	Lack of knowledge of the long-term consequences
Store in the corner of the shop	Cost of non-optimal use of space
Space used for bin	Cost of non-optimal use of space
Unfavourable supplier relationship-no extra support apart from standard benefit	Lack of knowledge of the long-term consequences
Tighter returns policy - cost of losing customers	Lack of knowledge of the long-term consequences
Unawareness of the benefit. Such as unaware of sustainable competitive advantage	Lack of knowledge of the long-term consequences

Table 7.26 Hidden Costs of Reverse Logistics

presented in Table 7.24, were also the factors that helped them to either eliminate or reduce the costs.

7.4.8 Drivers and Barriers

As summarised in Table 7.27, firms were found to be driven to go through the process of RL either by economic gain or economic savings, and there were no other motivational aspects found other than economic ones. As the owner of Firm E said: '*We all do this for either earning or saving money really…*' (Owner, Firm E). Firms also revealed that they become involved in RL activities for customer satisfaction reasons; however, this was again related to indirect economic gain.

Drivers	Economic	Economic Gain	A, B, C, D, E, F
		Economic Saving	A, B, C, D, E, F
Barriers	Size of the business	Not enough Knowledge	A, B, C, D, E, F
		Confusion responsibility	A, B, C, E
		Not important	A, B, C, D, E
		Time constraint	A, B, D, E, F
		Other resource constraint	A, C, E, F
		Informal behaviour	A, B, C, D, E, F
		Reluctant behaviour	E
		Small volume small impact	A, B, D
		No reporting	E
		Short sightedness	A, B, C, D, E
	No supplier assistance	No full supplier assistance	A, B, C, D, E, F
		Supplier as burden	A, B, C, F
	Nature of product		A, B, C, F
	Weak policy formulation		A, B, C, D, E, F
	Sensitive issue		A, B, C, D, E, F
	Confusing issue		A, B, C, D, E, F
	Customer	Customer preference	E
	Age of the business		D
	Company policy		A, B, C, D, E. F

Table 7.27 Drivers and Barriers of Reverse Logistics

Consequently, all the studied firms were found using various resources to build and develop the capability required to process RL, but the goal was either economic gain or economic savings. In some cases, they either did not have the knowledge, or just ignored the benefits attached to RL, which prohibited them from becoming involved in the process of RL. For instance, none of the firms had any knowledge about take-back legislation, and none of the firms besides Firm B knew about the benefits of 'own initiative' take-back. For instance, Firms A, C and F were expected to have knowledge on used battery take-back legislation, as they all sold batteries which by law had to be taken back. Studied firms also did not have knowledge about other benefits apart from economic benefit for using their own initiative to take back goods. For instance, Firm D took the initiative of taking used and second-hand goods back from the public, but they did this only for economic gain. This act, however, could not provide them with environmental related benefits, as Firm D did not have knowledge about this. Studied firms being unaware of 'take-back law' or not having 'own initiative take back' provision were also likely to remain barred from its benefit. As Table 7.27 depicts, this means that firms also faced various barriers which prohibited them from going through the process of RL, hence prohibiting them from developing the associated

capabilities. This factor also affected the way they addressed the related costs. Apart from other barriers explained in Table 7.27, characteristics related to small size businesses were one of the dominant barriers the firms faced. Not having enough knowledge on the various aspects of the process was a barrier found in all firms, which was related to their small size. For instance, all of the firms had the knowledge of economic drivers but were unaware of other drivers, which again prohibited them to collect goods in other categories like legislative or take their own initiation to collect goods. Likewise, none of the firms had precise knowledge on aspects such as: the volume of accumulation; time required; disposal options; maintaining relationships with suppliers; and using precautionary measures. Firms A, B, and D spoke about having a relatively small volume of goods which did not motivate them enough to go through this process. Likewise, not being important was a barrier identified in all firms. For instance, the firms did not keep proper records of the goods because this was not an important task for them. The nature of the goods was found as another barrier to the process of RL for Firms A, B, and F, as Firm A could not fully use the disposal option because of the short date and perishable nature of their goods. Firm B and F, who dealt with electronic and electrical goods, also could not use all the disposal options, due to the health risks attached to their products. It was also revealed that not enough cooperation from the suppliers was another barrier faced by almost all firms, as most of the suppliers did not provide any other assistance besides what was mentioned in the standard terms and conditions. The terms and conditions also offered much less for almost all firms. Nevertheless, customer preference was another barrier, as customers of Firms A, C and D did not want to bring the goods back for repair, but rather wanted to exchange for any damages and breakages. The policy of the firm did not allow the businesses to develop the required capabilities. For instance, with the exception of Firm B, none of the firms had a policy of taking back used goods, which is another barrier to reversing logistics in the studied businesses.

7.5 Summary

The core aim of this chapter was to present and analyse the final phase research conducted for this study, using both within-case and cross-case analysis. The way the identified themes have been used to answer the research question is presented in the comprehensive analysis framework, as in Figure 7.1. An explanation of these themes to address the capabilities and cost of RL for the studied MBs has been elucidated. This chapter, as presented in Appendix I, has also identified and analysed the core emerging themes for this study.

Resources and Capabilities used by the Studied Businesses to Build Reverse Logistics Capabilities, with Reasons for Using these Resources	Firms using Resources and Capabilities					
	A	B	C	D	E	F
Capability to go through the process of reversing the logistics						
Goods accumulation	x	x	x	x	x	x
Transportation or moving	x	x	x	x	x	x
Warehousing/storage	x	x	x	x	x	x
Sorting/selecting/inspecting	x	x	x	x	x	x
Using the disposal options	x	x	x	x	x	x
Tacit knowledge gained from past experiences						
To understand the goods accumulation in various categories with its reasons	x	x	x	x	x	x
To understand the reasons for keeping the permanent record of the goods accumulated in the reverse channel	x					
To understand the reasons for keeping temporary records of the goods accumulated in the reverse channel	x	x	x	x		x
To speculate the volume of goods accumulation	x	x	x	x	x	x
To understand how and why to use the precautionary measures	x	x	x	x	x	x
For know-how in transporting and moving goods from one place to the other	x	x	x	x	x	x
For know-how in warehousing and storing the goods	x	x	x	x	x	x
For sorting/sorting/selecting/inspecting	x	x	x	x	x	x
For understanding and using/choosing the disposal option	x	x	x	x	x	x
To understand how and why to use the supply chain relationship	x	x	x	x	x	x
To understand how and why to speculate the time required	x	x	x	x	x	x
Time						
In transporting and moving /goods from one place to the other	x	x	x	x	x	x
In warehousing and storing the goods	x	x	x	x	x	x
For sorting selecting and inspecting	x	x	x	x	x	x
For using the disposal option	x	x	x	x	x	x
Effort						
In transporting and moving /goods from one place to the other	x	x	x	x	x	x
In warehousing and storing the goods	x	x	x	x	x	x
For sorting selecting and inspecting	x	x	x	x	x	x
For using the disposal option	x	x	x	x	x	x
Private transport system						
In transporting and moving goods from one place to another	x		x	x	x	x
Business transport system						
In transporting and moving goods from one place to the other		x				
Supply Chain Relationship						
In transporting and moving good to the suppliers' place	x	x	x			x
For warehousing and storing the accumulations	x					
For sorting/selecting/inspection	x		x			
For using as the disposal option	x	x	x	x	x	x
Storage space						
For warehousing/storing the accumulations	x	x	x	x	x	x
Space for bin						
To place the bin	x	x	x	x	x	x
External entity as specialist Engineer						

For sorting selecting and inspecting		x				
For disposal (repairing and refurbishing)		x				
Information						
To inform the suppliers about the accumulation for compensation	x	x	x	x	x	x
Physical attribute - phone						
To send information to the suppliers about the accumulation	x	x	x		x	x
Physical attribute - computer						
To send information to the suppliers about the accumulation		x		x		x
Physical attribute - picture taking device						
To take pictures to upload in the web channels like Facebook, eBay, Amazon, Gumtree and Website		x		x		
Physical attributes - Sellotape, staples						
For minor repairing and refurbishing	x		x			
Physical attributes - pen and paper						
For writing the reduced price and stick this in the product	x	x	x	x	x	x
For writing the temporary/permanent record of the goods accumulation	x	x	x	x		x
Physical attributes - tools/equipment or spare parts						
For repairing and refurbishing		x				
Physical attribute bin and bin bag	x	x	x	x	x	x
External entity - paid bin man						
To pick up the discarded goods	x	x	x			x
Cleaners						
To clean and police the used and second-hand goods		x				
Other contact of companies/wholesalers						
For purchasing spare parts for repairing and refurbishing		x				
Online channels - eBay or Amazon for spare parts						
For purchasing spare parts for repairing and refurbishing		x				
Charitable organisations						
To give away their year-long accumulation to the charity					x	
Scrap people (informal recyclers and dismantlers)						
To give away the discarded home appliances to these people		x				
Money						
To invest in the other channels like Facebook, Website, eBay, Amazon and Gumtree		x		x		
Illegitimate behaviour						
To store the accumulation in the loft without the consent of the landlord					x	
Informal behaviour						
To give away discarded home appliances to scrap people who would handle this informally		x				
Unethical behaviour						
To use the disposal option by selling the customer return goods as new	x	x	x	x	x	x
Excessive precaution/prevention behaviour						
To use a very tight return policy	x	x	x	x	x	x
Opportunistic economic and social behaviour						
To make Personal use and office use of the goods for economic gain, and, to give discarded goods to friends and family for social recognition	x	x	x	x		x

Table 7.28 Summary of the Resources and Capabilities Used by Firms

The core emerging themes are related to the identified key/main themes, but provide an opulent, more nuanced view of processing RL in the studied businesses. The explanation of all these aspects is accompanied with some relevant self-explanatory and comprehensive tables, figures and appendices.

As presented in Table 7.16, all the studied businesses have goods accumulation in various categories which need to be processed for value extraction, management, or disposal. As shown in Tables 7.3, 7.5, 7.7 ,7.9, 7.11 and 7.13 of this chapter, all of the firms were involved in the process of RL. As demonstrated in Figure 7.1 and as summarised in Table 7.28, which is also explained in Section 7.4.1 to 7.4.7, the studied firms used both tangible and intangible resources to build and develop their capabilities. Nevertheless, there were some resources and capabilities used by the studied firms which were business- or product-specific; for example, Firm B being the only firm to collect, repair and refurbish used and second-hand goods used external resources like cleaners and expert engineers. As demonstrated in Appendix I, and as explained in this chapter, some of the resources and capabilities used by the studied firms have emerged as newly emerging themes. Tacit knowledge gained from past experiences, owner/managers' time and effort, and supply chain relationships were found to be the dominant resources used to build RL capabilities. In some cases, the studied firms were found to be fully, partially, or not at all capable of completing the process of RL. As summarised in Table 7.28, firms have explored and recognised various resources to build capabilities, however there are differences in the way they have explored and used these capabilities. For instance, Firm E was one of the firms who had meaningfully recognised and explored the supply chain relationship to build capabilities related to RL, whereas other firms were yet to do so. Again, firms were found to use capabilities such as informal, illegitimate, unethical and unsustainable behaviours as resources to build capabilities. Overall, this finding acknowledges that the studied firms developed the capabilities for RL in their own unique way, and shows that they may not have all the necessary capabilities. Nevertheless, the way these businesses have identified and used resources to build RL capabilities may need further development and refinement.

Furthermore, the nature and situation of the studied businesses have again affected the way they address/perceive the cost of RL. The studied firms' priority, due to their small size and resource constrained nature, was to use various approaches to avoid costs. However, they also found ways

to avoid or reduce the costs without realising the long-term adverse consequences. Studied firms were also found not having the capability to know all the costs, and that some of the costs remained hidden from them.Costs remaining hidden from the firms or the firms failing to see the long term adverse consequences of reducing the costs had the potential to bring adverse consequences in the long term.Overall, firms not being able to analyze all the cost facets of RL in a holistic manner has prohibited them to make a rational and optimal cost decision.

Nevertheless, the fact that firms fail to see any other benefit from getting involved in RL other than for economic gain has prohibited them from building and developing the required capabilities in an effective and efficient manner.This situation, again, has prohibited them from acquiring the related benefits, as firms worked on gaining economic benefit but they were unaware that the RL capabilities also had the potential to bring environmental related benefits. Firms need to understand the other drivers of RL, other than just the economic benefit attached to it. Firms also need to work on the barriers if they want to fully utilise the existing capabilities or explore and build new capabilities. This attitude will not only help firms to further develop and explore the new capabilities but will also help in acquiring the related benefits. Nonetheless this attitude will also help the studied businesses to address the cost in the most optimal way.

Chapter 8: Discussion of Research Findings

8.1 Introduction

This study has reviewed the existing literature on RL and has found that RL is a process. As per one of the more 'sophisticated' definitions (Bernon and Cullen, 2007), RL is:

> 'The process of planning, implementing, and controlling the efficient, cost effective flow of raw materials, in-process inventory, finished goods, and related information from the point of consumption to the point of origin for the purpose of recapturing or creating value or proper disposal' (Rogers and Tibben-Lembke, 1999, p.2).

Apart from economic benefit, RL '*… has become a blanket term for efforts to reduce the environmental impact of the supply chain*' (Rogers and Tibben-Lembke, 2001, p.130). Due to such benefits, RL can also bring sustainable effects to the businesses resulting in sustainable competitive advantage (Markley and Davis, 2007; Shen and Li, 2015). Existing studies show that the study of RL aspects concerning small businesses is very rare. However, the existing research also suggests that these studies are in the emerging and developing stage. Hence, this research argues that to have an in-depth and holistic understanding of RL aspects concerning smaller businesses, more research is required. With regards to exploring the RL aspects concerning smaller businesses, this study has chosen MBs, as it is believed that MBs can be extreme cases which can provide valuable contrasting and nuanced views of RL.

This study has looked at the literature on the theoretical aspects concerning RL, and found that Resource Based View (RBV) (Barney, 1991) and Transaction Cost Economics (TCE) (Williamson, 1985) are the most widely used theories in the study of RL (Lau and Wang, 2009). Nevertheless, with the focus of this research being MBs, it has become imperative to understand how the resource intense nature of RL (Daugherty, Autry and Ellinger, 2001) blends with the resource constrained nature of MBs (Wiklund and Shepherd, 2005). The theories of RBV (Degravel, 2012; Kearney, Harrington and Kelliher, 2014; Campbell and Park, 2017), and TCE (Ongori and Migiro, 2010; Yoon and You, 2015) are believed to provide some insight on the capabilities and costs of RL in MBs. Consequently, the research aims and objectives and research questions for this study, apart from literature review and the result derived from the first phase research, have been based on the theories of RBV and TCE.

The main aim of this chapter is to align the existing literature with the findings of the current study and answer the research questions. The two research questions based on two theories of RBV and TCE, which will be answered in this chapter, are:

> **RQ1:** Do micro businesses have the capabilities to go through the process of reverse logistics for sustainable competitive advantage? (RBV focused)
>
> **RQ2:** How do micro businesses address/perceive the costs involved in the process of reverse logistics? (TCE focused)

8.2 Reverse Logistics Capabilities – RBV Focus

This section, with a focus on RBV, will answer the first research question and determine whether the studied businesses have the capabilities to go through the process of RL for sustainable competitive advantage.

Capabilities in RL are seen through the lens of RBV (Barney, 1991). RBV sees a firm as a bundle of resources and assets and emphasises the use of rare, valuable, inimitable and unsubstitutable resources to gain sustainable competitive advantage (Wernerfelt, 1984; Barney, 1991; Conner, 1991; Grant, 1991). Resources are comprised of tangible physical assets, intangible information, and knowledge. Capabilities are again the result of effective use of both tangible and intangible resources, continuous and distinguished practices, and gathered experiences. Capabilities are said to be more difficult to imitate or substitute, and therefore add a greater value to the firm. This theory helps to explain a firm's initiations in building capabilities that become difficult for competitors to imitate or alleviate in a short period. This situation, again, can be explained as the firm's ability to attain long-term sustainable competitive advantage (Collis, 1994; Reed and DeFillippi, 1990).

RL has specific importance and significance as it helps cut costs and increase profit while making a favourable impact on the environment (Rogers, Rogers, and Lembke, 2010; Dowlatshahi, 2012; Dhakal, Smith and Newbery, 2016), overall bringing a sustainable competitive advantage to the firm (Markley and Davis, 2007; Shen and Li, 2015). RL may have tremendous benefits; however, RL at the same time requires special capabilities. Nevertheless:

> 'Reverse logistics capabilities represent the internal capabilities and processes that the firm deploys to effectively implement its reverse logistics activities…' (Jack, Powers and Skinner, 2010, pp.229-230).

Various aspects such as, ‘processes’, ‘internal capabilities’ and ‘effectiveness’ are found in this notion. The notion of ‘processes’ aligns with the existing study, as this study has found that MBs go through the process of RL, as all the studied businesses have goods accumulation in the reverse channel. They then follow the process of transportation, storage/warehousing and sorting/selecting/inspecting/testing, and lastly, they all use disposal options of some kind to extract value, manage, or dispose of the accumulated goods.

Again, as per the existing literature:

> ‘Reverse logistics capabilities include the accuracy and the availability of information that is used, and the process and timeliness of reverse logistics information. Reverse logistics capabilities also include the internal and external connectivity and usefulness of that information. These capabilities represent a bundle of information-related processes that enable a firm to better manage its reverse logistics activities that may in turn relate to cost savings’ (Jack, Powers and Skinner, 2010, pp.229-230).

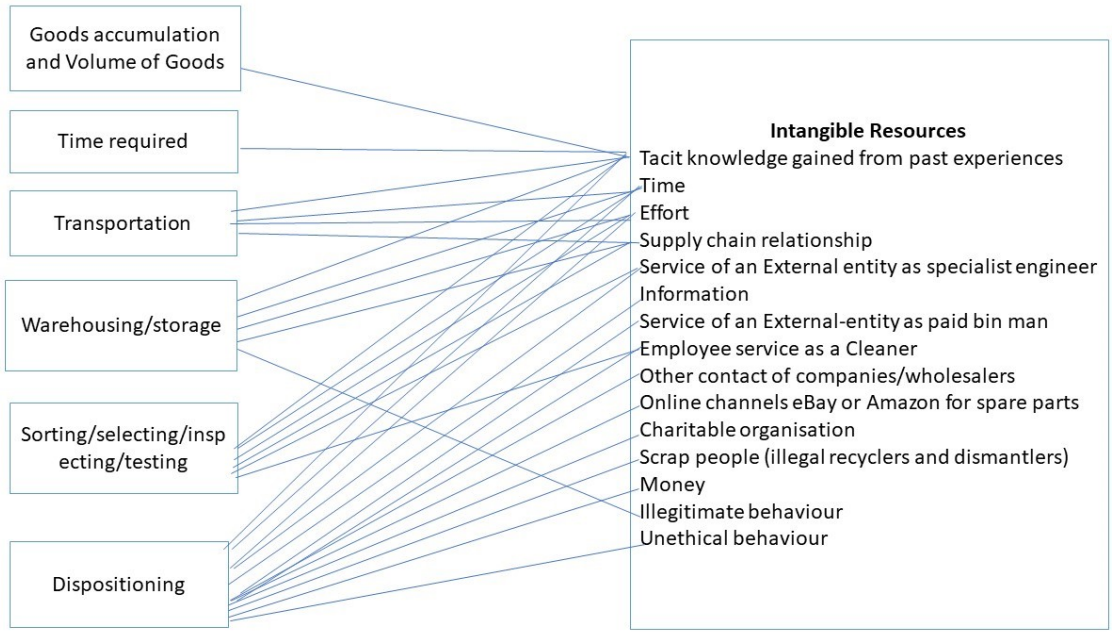

Figure 8.1 Intangible Resources used by Micro Firms to Build Reverse Logistics Capabilities

Nonetheless, capabilities are the result of effective use of both tangible and intangible resources, continuous and distinguished practices, management skills, processes and procedures, and its effectiveness in monitoring the information and knowledge (Barney, 1991). This notion aligns with the existing study, as the studied businesses, as shown in Figures 8.1 and 8.2, have deployed

various tangible and intangible resources and capabilities to build and develop the capabilities required to go through the process of RL.

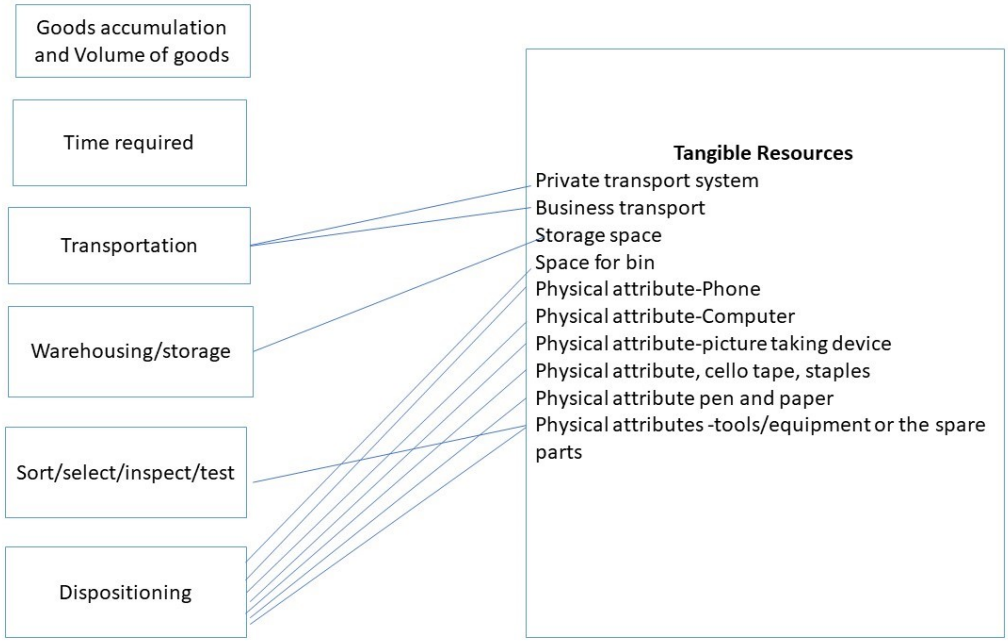

Figure 8.2 Tangible Resources used by Micro Firms to Build Reverse Logistics Capabilities

However, as per Barney (1991) along with the first research question for this study, whether these businesses have the capabilities to go through this process may not be understood by just identifying the resources they have deployed. This may be understood by analysing how effective and efficient their resource deployment has been. Again, the efficiency and effectiveness of resources may be understood by analysing how effective and efficient their RL process has been. Overall, with focus on the theory of RBV and with view to understand the studied businesses' capability of going through the process of RL, the following sections will discuss the studied businesses' capability in identifying, understanding, and implementing the aspects in the process of RL, such as: the capability of understanding the goods accumulation and its volume; the capability of going through the process of RL including transportation, warehousing/storage and sorting/selecting/ inspecting; the capability in using the disposal options; and the ability of the studied businesses to manage the time required to extract value, manage and dispose of the goods. Finally, the following section will evaluate whether the studied businesses are capable of using RL capabilities for sustainable competitive advantage.

8.2.1 Goods Accumulation and Volume of Goods

The activities related to RL start with goods accumulation in the reverse channel (Autry, Daugherty and Richey, 2001; Richey et al., 2004; Bernon, Rossi and Cullen, 2011). This notion aligns with the current study, as goods have been accumulating in the various categories of the reverse channel of these businesses, as shown in Table 7.16 of Chapter 7. Existing literature depicts that accumulation brings headache, increased workload and lower profitability (Mukhopadhaya and Setoputro, 2006). Hence, firms can develop capabilities in avoiding or lessening the volume of accumulation, to remove the hassle related to RL (Lau and Wang, 2009; Rogers, Melamed and Lembke, 2012). This notion aligns with the current study. As shown in Table 7.19 of Chapter 7, the firms in the current study were found to be using various precautionary measures as resources to build capabilities to help them to avoid or lessen the accumulation. For instance, Firms A, B, C, and E stocked fewer goods, and Firms A, B, C, D, and E stocked quick turnover goods to avoid accumulation of 'unsold and excess' goods. However, the existing literature also reveals that it may be beneficial for the firms to work on building capabilities to manage these goods rather than avoiding the accumulation, as there are both economic and environmental repercussions in avoidance of some of the categories. For instance, the firms in the current study were found capable of avoiding or lessening the volume of customer returned goods by using a tighter returns policy. Because of their resource constrained nature (European Commission, 2008), the studied firms used ways to prevent customer return in order to get rid of the expenses and hassle related to it. However, this tendency can alienate their customers in the long run, resulting in a decrease in their market share. Smaller businesses already have a small market share (Papadaki, Chami and Branch, 2002). The findings of this study show that MBs, who have an even smaller market share, can make the small market share situation worse if they alienate their customers. Hence, it will be beneficial for these businesses to seek ways of building capabilities in managing the goods accumulation, rather than avoiding it as this may help customer retention, resulting in capturing a bigger market share (Smiths, 2005).

Studied firms are found using various capabilities to avoid or lessen goods accumulation in the 'unsold and excess' category. However, as shown in Table 7.17 of Chapter 7, the largest volume of goods in almost all the businesses were in this category. This shows that the studied businesses have been unsuccessful, even though they use precautionary measures to reduce the goods in this category. As mentioned in the literature, the studied businesses used tacit

knowledge gained from past experiences as a precautionary measure rather than a planned and formal way (Aboagye-Nimo et al., 2015). This could be the reason for the measures being less effective. Planning may be related to long term success, however MBs do not give much attention to planning, and work on more informal terms (Greenbank, 2001) which aligns with the current study. For instance, almost all the studied businesses were found to keep no formal record of the accumulations, which may have prohibited the understanding of the actual volume of accumulations. This again may have been one of the reasons for the precautionary measures being ineffective. Existing literature depicts that a short-term vision and gain prevails in small businesses, rather than a long term strategic vision (Wong and Aspinwell, 2004), a factor also found in the studied micro firms. Precautionary measures may have saved the studied businesses from the hassle of reversing the logistics in the short term but may not be beneficial in the long term. The existing literature recognises that gaining expertise in managing the accumulation rather than avoiding them is more strategic (Cullen et al., 2013).

Existing literature depicts that 'legislative' and 'own initiative' take-back are related to both economic and environmental benefits (Lifset, Atasu and Tojo, 2013; Gui et al., 2015). Firms A, C, and F were expected to have knowledge on the legislative take-back related to batteries (Battery Directive, 2008), as they all sold electrical goods, including batteries. However, none of these firms had accumulated goods in this category, neither had they knowledge of this law. This has again resulted in no benefits for the studied firms, which are attached to these take-backs. It also means that the environmental related benefits such as CSR and competitive advantage are the result of these take backs. As noted by Simpson, Taylor and Barker (2004), small businesses face misunderstandings and difficulties in achieving the environmental initiatives, which aligns with the nature of the studied MBs as well. Almost all the studied businesses were found to be uninterested in taking back used goods. The findings conclude that all studied businesses, except Firm D, still do not have capabilities to understand the essence behind the benefit of such take-back, as they had neither the knowledge nor the accumulations in this category. Hence, the lack of capabilities in acquiring knowledge of the categories has potential to bring both economic and environmental repercussions to these businesses. As conceded by Vernon et al., (2003), knowledge and training can be provided to these businesses and their employees, which may encourage them to adopt green initiatives. Vos (2005) conceded that knowledge is essential to understand the facets of RL. Ineffective implementation and accountability of the policy

formulation (Nash and Bosso, 2013) could also be one of the reasons for these businesses lacking knowledge, especially on legislative take-back. Concerned authorities such as the Small Business Act (2008) can work on providing effective knowledge to these types of firms about the environmental issues surrounding RL.

The analysis of the existing literature depicts that past research has not evaluated the precise volume of the goods that accumulate in the various categories of the reverse channel. The literature review has recognised that businesses do not give priority to this aspect, and that there is less management reporting and awareness in this area, as firms still do not see the importance of managing RL (Cullen et al., 2013). This view aligns with the current study, as the studied firms did not have a precise knowledge on the volume of accumulation because they do not see RL as a mainstream task. This could be the reason that the volume they mentioned were speculated figures rather than being precise. Speculation is a newly emerging theme in this study for the MB context; however, this tendency has prevented the firms developing the required capability to manage these goods. Not keeping record of goods was the direct reason why the firms had no precise knowledge of the volume of goods. Their informal way of doing things (Greenbank, 2001) and failing to give sufficient importance to the issue were the reasons for them not keeping record of the goods. The studied businesses had a small volume of goods accumulation, which may not allow them to have the advantages of economics of scale, aligning with the existing literature. Gaining economics of scale has always been a problem for small businesses (Saleh and Ndubisi, 2006; Tomlinson and Fai, 2013), which is also the case in the studied MBs. Not having the advantage of economies of scale will result in higher costs associated with managing these goods, ultimately increasing the operating costs for these businesses (Autry et al., 2001). Overall, the studied MBs do not have all the capabilities required to either know the precise volume of the goods nor to manage the volume of the goods that accumulate in their reverse channel.

The studied firms may need to do a little planning (Greenbank, 2000, 2001) and formalise the process (Han and Cueto, 2016) by keeping a proper tracking system of their reversed goods. This would again enhance their capability in understanding the type and volume of goods accumulation, which will provide them with knowledge about what resources and expertise they may require in managing them. However, this can be achieved only if these businesses understand the significance of managing the reversed goods, where gaining knowledge on RL plays an important role (Barker and Zabinsky, 2011).

8.2.2 Reverse Logistics Processes

Firms may need to develop the capabilities of transporting/moving (Rajagopal, Kaliani Sundram and Naidu, 2015); warehousing/storing (de Koster et al., 2002; Dowlatshahi, 2012) and sorting/selecting/ inspecting/testing the goods that accumulate in the reverse channel (Tibben-Lembke and Rogers, 2002; Niknejad and Petrovic, 2014). This section will analyse the studied businesses' capabilities on these aspects and see if there is any alignment with the existing literature.

8.2.2.1 Transportation

The existing literature on RL recognises that it is not just the arrival of the goods, but companies may even have to arrange for sending these goods away for proper disposal (Rajagopal, Kaliani Sundram and Naidu, 2015). This notion aligns with the existing study, as firms had goods which had to be transported from one place to another. Firms A, B, C, and F were found using the supply chain relationship, as a resource, to build capabilities for moving the goods back, as their supplier arranged to pick up the goods whenever needed. The supply chain relationship will give the firms a chance to look outside the organisational constraints, to see how the resource of suppliers can be exploited to improve the performance of the business (Dell and Fredman, 1999), which also aligns with the case of most of the studied MBs. Firms D and E were the only ones whose suppliers did not assist in transporting these goods, however their supplier asked the firms to bring the goods back to them during their next purchase visit, which was helpful. Small businesses are time constrained (Freel, 1999), which aligns with the current study, as firms were also found using extensive time and effort as resources which left them with little time for other tasks. This also shows that, whenever required, all of the firms have developed the capability of using cost-effective ways of transporting the goods. This notion aligns with the existing literature, as transport decisions in RL must be done in such a manner so that the cost of doing so is optimal (Srivastava, 2008; Demirel, Demirel and Gökçen, 2016).

8.2.2.2 Warehousing/Storage

The existing literature recognises that the products that accumulate may have to be stored until a decision is made about what to do and where to send the products (de Koster et al., 2002; Dowlatshahi, 2012). Hence, the firms are required to develop the capability of storing/warehousing the goods. This notion aligns with the current study, as all the studied firms

used storage of some kind to store their goods. Firms B, C, and F had already developed their capabilities in storage, as they had been running their businesses for many years. These businesses had a large separate storage area to store their piled-up goods. This view aligns with the existing literature as capabilities are not built in a short period of time but can be built over time through repetition of the given set of actions and procedures (Rockart and Dutt, 2015). Supply chain relationship, as a resource, was used by Firm A to build storage capabilities to store some of their goods, as their suppliers set up a storage area for the unsold and excess magazines and newspaper. Small businesses use the supply chain for help and support (Hong and Jeong, 2006) and the supply chain relationship is also acknowledged for RL tasks (Nguyen, 2012). Help and support from suppliers was apparent in the case of studied MBs as well. Firm E used the loft of the shop, and others used the corner of the shop or bin bags to store their goods. This shows, due to their resource constrained nature, MBs are unable to set up proper storage. However, as revealed by Firm D, businesses may need to develop their capabilities further, for example, in setting up proper storage once their business starts to grow. However, as found in Firm E, even if they had been in business for a long time, they did not feel the need for proper storage. Firm E built the capability of giving away their accumulation to charity as an external entity, without the need to store anything. The studied firms can build such capabilities for the optimal storage management of these goods. Firm E, however, also used the practice of 'illegitimate behaviour' as a resource to store their goods. As they were found storing their goods in the loft of the shop without the consent of their supplier. Hence, 'illegitimate behaviour', which has been used as a resource to build RL capabilities, is an emerging theme for this study.

8.2.2.3 Sorting/Selecting/Inspecting/Testing

The existing literature on RL recognises that the goods that come back are not uniform in quality, which is another challenge faced by the businesses (Tibben-Lembke and Rogers, 2002; Niknejad and Petrovic, 2014). This view aligns with the existing study. For instance, as explained by Firm D, the goods did not arrive back in saleable condition as they were found to be used by the customers, which aligns with the existing literature. The businesses, depending on the type and quality of their products, need proper sorting, selecting and inspection (de Brito, Dekker and Flapper, 2004; Rajagopal, Kaliani Sundram and Naidu, 2015) which is another capability firms may need to develop. The studied businesses, as per their situation, were found developing the capability of sorting/selecting/inspecting/ testing their goods. As shown in Figures 8.1 and 8.2, the

studied business used various tangible and intangible resources for sorting/selecting/inspecting. Apart from other resources, almost all of the studied businesses used time and effort, as resources, to build this capability. Firm B was the only firm who used an external entity (specialist engineer) as resource to build the sorting/ selecting/inspecting/testing capability. As per the theory of RBV, businesses may decide to do the tasks themselves if the task is related to the core aspects of the firm, and business may want to outsource the task if the task is not a core aspect to the firm (Arnold, 2000, cited in Johnsen, Howard and Miemczyk, 2014). This view does not align with the performance of Firm B. Testing/inspecting the goods was one of the core business activities of Firm B, as their business was related to bringing in used and second-hand goods, testing/inspecting/sorting them, repairing them if needed, and selling these for profit. Firm B, however, used an external entity, as specialist engineer as a resource, to build this capability. Hence, they did not do this themselves, even though the task was core to their business.

Either done by themselves or outsourced, the capabilities the studied businesses have developed in sorting/selecting/inspecting/testing has made them aware of the actual state and condition of the products. This capability will guide them in identifying and selecting a proper disposal option (Tibben-Lembke and Rogers, 2002).

Overall, as per the above, analysis, the studied businesses were found developing the capabilities required in processing the reversed goods in their own unique way, which reflects their MB character, which may however need further development.

8.2.3 Disposal

Section 8.2.2 explained the capabilities the studied businesses need to get the goods go through various processes of RL. However, apart these processes, the firms should also have the capability of disposing of the goods in the most appropriate way. This can only be achieved if they are able to identify and choose from optimal disposal options. The existing literature explains that firms can make use of several disposal options for their accumulated goods depending on their situation.

Disposal Options for Retailers	Disposal Options for Manufacturers
Return to vendor	Direct reuse/resale
Sell as new	Repair
Repackage, sell as new	Refurbish
Sell via outlet	Remanufacture
Remanufacture/refurbish	Cannibalisation
Sell to broker	Recycle
Donate to charity	Incineration
Recycle	Landfill
Landfill	
(Tibben-Lembke and Rogers, 2002, p.2).	(Thierry et al., 1995, p.118)

Table 8.1 Disposal Options for Reversed Goods

The generic disposal options for retailers and manufacturers, as mentioned in the literature, are presented in Table 8.1. Apart from the options mentioned here, the literature review recognises that firms may also use options like reduce and resell (Oprea and Brezoi, 2017) or move the goods into a different display area to enhance the selling potential. However, as per their situation and condition of the goods, firms may use the options interchangeably as companies need to carefully consider various factors that may affect the choice of the best and optimal disposal options (Ravi, Shankar and Tiwari, 2005; Dyckhoff et al., 2013). MBs are resource constrained, including human resources (Pullen et al., 2008; Paik, 2011), finance (European Commission, 2008), and education and training (Vos, 2005; Ates et al., 2013), all of which affect the identification and management of the required knowledge. Hence, their actions will reflect their resource constrained nature. Aligning with the notion of these existing literatures, studied MBs, as shown in Table 8.2, have used the options of which they had knowledge, that were readily available, that they think would yield economic gain, and that had little or no investment. This means that the studied micro firms were not able to identify and use all the disposal options mentioned in Table 8.2. The majority of the firms' choice were to send the goods back to suppliers; throw in bin; minor repair and refurbish; sell as new; direct reuse; reduce and sell; and move the display area and sell. All firms used the option of sending the goods back to the suppliers, as this option, due to the return policy provided by the supplier, was readily available. This option also did not have any extra investment, and there was economic gain in this option as the firms would get compensation for their goods from their suppliers.

Disposal Options	Firm A	Firm B	Firm C	Firm D	Firm E	Firm F
Send the unsold and excess goods back to supplier	✓		✓			
Send the broken/damaged/expired goods back to the suppliers	✓	✓	✓	✓	✓	✓
Throw the goods in bin	✓	✓	✓		✓	✓
Repackage and resell	✓		✓			
Repair and refurbish		✓				
Minor repair and refurbish	✓	✓	✓	✓	✓	
Give away goods to the recyclers and dismantlers		✓				
Sell as new	✓	✓	✓	✓	✓	✓
Direct reuse	✓	✓	✓	✓		✓
Reduce and sell	✓	✓	✓	✓	✓	✓
Sell via outlet		✓		✓		
Give away to charity					✓	
Cannibalise				✓		
Move the display area and sell	✓	✓	✓	✓	✓	
Believe that government should help			✓			

Table 8.2 Disposal Options used by Studied Firms

Some options, even if economically sound, may not always be use by the studied firms if the firms do not have knowledge of that option. For instance, Firm E sent their goods to charity because this was economically sound for them, as there was no extra investment in doing so. However, Firm C did not use this option, because they did not know about it. This view aligns with the existing literature, as lack of knowledge is one of the limitations of MBs that puts them in an unfavourable situation (Pérez-Luño, Saparito and Gopalakrishnan, 2016). Almost all of the studied firms used the option of throwing in the bin, even if they considered this to be the last option. This has generated both economic and environmental consequences, which aligns with the existing literature, as throwing or landfilling is the most unsustainable way of disposing of goods (Kumar and Putnam, 2008). This also means that small businesses may make a small adverse impact at the micro level, but this effect may be devastating at the macro level (Williamson and Lynch-Wood, 2006). Nevertheless, this finding has strengthened the rationale behind this study, as this is also the case for the studied MBs. Hence understanding the RL aspect of MBs is significant.

Studied firms have shown their capabilities in using several disposal options; however, it was found that they do not have the capabilities to use all of the disposal options, as mentioned in the literature, which is presented in Table 8.1. For instance, none of the firms used the option of selling to brokers, recycling or remanufacturing, sending back to the CRC, or incinerating. The studied firms did not sell to brokers, and the common reason for this was because they did not know about it. Again, this view aligns with the literature on MBs, as these firms are knowledge constrained. The owner of Firm A mentioned that because of the small volume accumulation, they do not give anything away to brokers as they believe brokers may only be interested in large volumes. Furthermore, they are small with a flat structure, working as a single entity. This means they do not have the CRC, as the large businesses do. This situation has not given them the privilege to send the goods to the CRC, which means they will not get the advantage of economies of scale (Tibben-Lembke and Rogers, 2002). SMEs face the problem of economics of scale (Saleh and Ndubisi, 2006), which again strongly aligns with the case of the studied MBs, as due to their much smaller size and much smaller operations, this situation becomes severe. None of the firms did recycling and remanufacturing, and the most common reason for this was their micro size. This again aligns with the existing literature, as micro size means very small resources, which prohibits these firms from being able to do certain things. Nonetheless, the disposal option of recycling and remanufacturing, which is more related to long-term economic and CSR strategy (Yu and Choi, 2014), is not desirable for small businesses (Inyang, 2013), a fact clearly identified in the case of the studied MBs.

Overall, the studied firms were found capable of using those disposal options which reflected their nature. This means they were found incapable of using all of the options mentioned in the existing literature. It is understandable that the firms would want to use the options that are economically viable, as being micro in size they are resource constrained. MBs can use various ways to enhance their capability, related to identifying and using various disposal options. However, they need to have both knowledge and resources to build these capabilities. For instance, to overcome the small volume and resource constrained nature, the studied firms could make use of the cluster effect by joining together (de Oliveira and Jabbour, 2017) or collaborating with other parties (Tomlinson and Fai, 2013). These firms can also work on finding recyclers or charitable organisations to give away their unwanted goods (Lambert, Riopel and Abdul-Kader, 2011), rather than throwing them in the bin. It may be a problem for firms like Firm A and Firm C who

deal with goods that have a short life, or goods with an expiry date. However, the sustainable way of disposing these goods would be to contact food banks and donate these goods to them near to the expiry date (Hindle et al., 2016), or find other sustainable ways of disposing of these. Besides, it will be good for the firms to gain some formal knowledge about the various disposal options (Pareja Roblin et al., 2014) and not just rely on those options that are based on their tacit knowledge (Aboagye-Nimo et al., 2015) or are readily available. As advised by Firm C, concerned authorities should provide information about ways to extract value, manage or dispose of these goods in an economical and environmental way, and overall in a sustainable way. This type of support may make these businesses more capable of handling these goods. Agencies like the Small Business Act (2008), who were established to provide environmental related help and support for these types of businesses, should gain knowledge on the peculiarities of issues like RL and provide effective support. Tilley (2000) suggests that small businesses need to show a more proactive approach by recognising the environmental problems concerning their businesses on their own, as they may not be compelled by law to adopt environmental initiatives in the same way as large businesses. This view can also be adopted by micro firms for the same reasons. This view, however, does require further research.

8.2.4 Time Required

The volume of accumulation may affect the decision making, and what disposal decision should be taken – and why – is an equally important decision to be made. However, if value from these goods is to be maximised, considering the time factor can become another important decision. Hence, firms are required to have the capability of extracting value, managing or disposing of these goods in time.

Existing literature depicts that '… *[a] strategic factor of the reverse-logistics system should reflect the basic logistics rule of right time, right place, right price, and right quantity*' (Dowlatshahi, 2000, p.144). This means longer the product stays in the reverse channel, the more chance there is of products becoming obsolete and the price to pay for obsolesce may be significant (Lieckens and Vandaele, 2007; Min and Ko, 2008; Lee and Chan 2009). Hence, it is important for the firms to be capable of extracting value from the goods as soon as possible to gain maximum benefit.

In their study, Rogers and Tibben-Lembke (2001) found that over 15% of respondents take two days or less to process their goods, over 40% process the returns in more than two weeks, and

15% take more than one month to process their goods. This shows that there is no definite timescale for processing these goods. This notion aligns with the existing study, as the respondents in the current study revealed that time was not definite, and it could take any amount of time. However, as a newly emerging theme, the management of 'unsold and excess' goods took the longest time in the studied businesses, although, as explained by the owner of Firm A, the short date perishable goods were processed more quickly. This notion aligns with the existing literature, as goods with a short product life cycle need a responsive supply chain to maximise the opportunity for re-use before they become obsolete (Bernon, Rossi and Cullen, 2011). This shows that the firms are using the tacit knowledge gained from their past experiences to manage the time (Aboagye-Nimo et al., 2015). The goods that came for repair or exchange were processed as soon as possible by all companies, and the common reason for doing this was customer satisfaction, leading to indirect economic gain. This aligns with the existing literature on reducing cycle times in RL for customer satisfaction (Retzlaff-Roberts and Frolick, 1997; Genchev, 2009). However, there was no precise timescale for managing goods left by customers for exchange, and this could take any time. Firm D mentioned that they see their suppliers every two months for exchanging/compensating for their unwanted goods, and this means that their cash is tied down for two months, which may be responsible for negative cash flows (Horvath, Autry and Wilcox, 2005). This view again aligns with the existing literature as waiting time that can adversely affect businesses (Richey, Genchev and Daugherty, 2005). As mentioned in the MB literature, the studied firms used their tacit knowledge gained from past experiences (Aboagye-Nimo et al., 2015) to make a speculative estimate about the timescale required for managing these goods, as they did not have precise knowledge on this.

Staying longer also increased the likelihood of the product becoming obsolete/expired/outdated, which again diminishes the value of the product, costing the company indirectly. Lastly, products became damaged and broken due to constant handling, because they were constantly pushed and pulled backward and forward. The studied businesses were helpless and did not know the time required, neither could they process the goods quickly, resulting in the rise of hidden costs. This notion aligns with the existing literature, as the longer goods stay in the reverse channel, the more chance there is of them becoming obsolete and the price to pay for obsolesce may be significant (Min and Ko, 2008; Lee and Chan 2009). It has been recognised that small businesses are time constrained (Spence, 1999, Wong and Aspinwall, 2004; Zach and Munkvold, 2012),

which is also the case for our studied MBs. This means that they will have hard time managing these products in time. The studied firms were found using extensive time and effort as resources which this research notes as one of the reasons for the MBs being time constrained. Additionally, due to their involvement in other activities of the firm, apart from tasks related to RL, they are not able to manage these products in time. According to authors including Childerhouse et al. (2003) and Svensson (2004), not being able to finish the task on time and according to the required standard is another risk the small business supply chain faces; this situation has also been found in the studied micro firms. This also means that the situation of not knowing the precise time required for managing these goods or not being able to manage the goods in time is worse in the studied micro firms.

Overall, due to their nature related to micro size, the studied MBs were found to be more likely to have a hard time managing their reversed goods in time. Hence, these types of businesses may need to seek ways to make optimal use of their time. Planning may be related to long term success, however MBs do not pay much attention to planning and instead work on more informal terms (Kelliher and Reinl, 2009). SMEs pay less attention to technology, and as a result their planning of information systems is poor, which can also be the case for micro firms (Zach and Munkvold, 2012). Furthermore, the lack of expertise in identifying sources of information (Callahan and Cassar, 1995) is also the result of limited resources (Masten, Hartmann and Safari, 1995). This situation may have the potential to limit MBs' information acquisition and utilisation, in turn hampering their wellbeing. Hence, proper planning may lead to enhanced performance of the studied firms and effective time management. This may again make the studied businesses more capable of tackling the issues like RL in a timely manner.

8.2.5 Aligning with the Theory of RBV

Overall, as per RBV theory, the studied businesses were found not having all the required capabilities. However, these firms were found developing resources and capabilities required to RL in their own unique way, which again reflects their nature of being micro in size. As mentioned in Figures 8.1 and 8.2, the firms were found to be developing capabilities using various tangible and intangible resources. As discussed in the above section, it was found that the deployed resources have been effective in some cases and have been ineffective in others. It can also be argued that in some cases, they may not have used the resources in an effective way. Overall, the studied businesses, to some extent, have developed the capability to extract value, manage

or dispose of these goods, which again may help bring sustainable competitive advantage in these firms (Barney, 1991). RBV sees firms as a bundle of resources which can be used and developed for building capabilities, which can again be used for sustainable competitive advantage (Barney, 1991). The studied firms, however, were not found to be achieving all the benefits attached to RL, even if they have identified and developed resources and built the required capabilities. Apart from some economic benefit related to customer satisfaction, these businesses were not aware of any other advantages attached to RL, such as environmental or corporate social responsibility benefits. The RL capability has not just allowed the studied firms to achieve economic gain, but their RL capability has also helped in reinstating the products that would otherwise be discarded. This act has again resulted in bringing a favourable impact on the environment; however, the studied firms were not aware of this impact. The studied firms were also not aware of the 'legislative take-back' and 'own initiative take-back' and were unaware of the benefits attached to either of these take-backs. Firm D, however, used the 'own initiative take-back' but they did this only for economic reasons, which could also yield them environmental benefit. This means that even if they had developed the capability of RL they were less likely to gain the environmental related benefits attached to RL. Hence, development of RL capability in MB does not always mean that they are also capable of achieving all the benefits attached to it, as they may not be aware of these benefits. RBV recognises that firms need to identify and develop the resources and capabilities to help them attain sustained competitive advantage. However, due to the unawareness of all the benefits attached to RL, the studied micro firms were not able to attain all the benefits attached to RL, even if they had developed the related capability. This study therefore recognises that the studied businesses need to use ways to further develop their RL capabilities. However, they may also need to know how the developed RL capabilities can be used for other environmental benefits, apart from economic benefit. This again may help them to attain all the benefits attached to RL capabilities, which again may provide them all the related sustainable competitive advantages.

8.3 Cost in Reverse Logistics – TCE Focus

This section, with a focus on TCE, will answer the second research question and see how the studied businesses address/perceive the cost of going through the process of RL. The cost factor in RL is seen through the lens of TCE (Williamson, 1975). TCE postulates the situations under which a firm should accomplish an economic exchange, internally within its boundary or externally

through inter-organisational arrangements. TCE's focus is to minimise the total transaction costs of producing and distributing a particular product or service. These costs are again determined by limited rationality, opportunistic behaviour, frequency, uncertainty, and asset specificity involved in the transactions (Williamson, 1975, 1985, 1996). The first two elements are the norms that explain the choice of a firm between insourcing and outsourcing. The last three situations are factors that characterise any transaction and affect the transaction cost. This theory helps to govern a firm's boundary and accounts for the efficiency-seeking behaviour of the firm through inter-organisational arrangements governed by contracts (Maltz, 1993; Baiman and Rajan, 2002).

RL has specific importance and significance as it helps cut costs and increase profit while making a favourable impact on the environment (Rogers et al., 2010; Dowlatshahi, 2012; Dhakal, Smith and Newbery, 2016). However, as per the existing literature, RL is a resource-intense task with many potential costs (Shi and Li, 2011; Khodaverdi and Hashem, 2015). Small businesses, due to having the disadvantage of economies of scale, have higher transaction costs (Saleh and Ndubisi, 2006). Nevertheless, MBs – who are even smaller than small businesses – are more likely to have even higher transaction costs. Moreover, making optimal decisions on the transaction cost of RL may not be straightforward as various facets of RL costs, such as cost avoidance/reduction (Lau and Wang, 2009; Rogers, Melamed and Lembke, 2012), known/visible costs (Shi and Li, 2011; Khodaverdi and Hashem, 2015) and hidden costs (Norman and Summers, 2006) may have the potential to affect the way firms address/perceive the cost of RL. This view aligns with the current research, as these cost facets prevail in the existing study and have affected the studied businesses' cost decisions. Moreover, this study has made it explicit that the cost avoidance and hidden cost situations were likely to dominate the studied firms, which were not made explicit in the literature for large firms. The various cost facets found in the literature will be examined with the findings of the existing study, which will be explained in the following sections. The following section will also analyse if the TCE cost determining factor is applicable in the various cost facet situations, found in the studied businesses.

8.3.1 Cost Avoidance/Reduction

The existing literature identifies that firms can use tactics to avoid/reduce the costs of RL (Lau and Wang, 2009; Rogers et al., 2012). This was strongly evidenced in the current study, as the

firms' priority was to avoid, if not reduce, the costs of RL. As mentioned in Table 8.3, the studied firms used various ways to avoid/reduce the costs of RL.

The TCE cost determining factor may not be applicable in some cases, and may be applicable in other cases, when firms intend to avoid the costs associated with RL. For instance, all of the studied firms used unethical ways of disposing of goods by selling customer returned goods 'as is', without further processing. This behaviour resulted in the avoidance of costs, hence, the TCE cost determining factor, which is related to make or buy cost decisions, does not take account of this situation. Again, all of the studied firms, as shown in Table 7.19 of Chapter 7, used a tighter returns policy to avoid returns to avoid costs, which has again barred them to make the 'make or 'buy' decision. This tendency also reflects the resource-intense nature of the studied businesses that may have led them to come up with innovative ideas as precautionary measures, to avoid costs.

Measures used for cost avoidance/reduction in the studied businesses
• Using time and effort to avoid/reduce costs (insource) • Using tacit knowledge gained from past experiences to reduce/avoid costs (insource/outsource) • See suppliers in the next visit, and not travel just for the sake of it to reduce/avoid costs (insource) • Use suppliers' transport system to avoid/reduce costs (outsource) • Use supplier' set up storage to avoid/reduce costs (outsource) • Use Illegitimate tactics to store to avoid/reduce costs (insource) • Use unethical disposal options to avoid/reduce costs (sell as new (insource) • Use informal disposal options to avoid/reduce costs (scrap people) (outsource) • Use charity rather than storing to avoid/reduce costs (outsource) • Use low cost, readily available, or no or less investment disposal options to avoid/reduce costs (insource) • Have dialogue with the supplier to avoid/reduce costs (insource/outsource) • Use various precautionary measures to avoid/reduce costs (insource)

Table 8.3 Measures used by Studied Firms to Reduce Costs

Small firms constantly face the need to innovate to survive, to grow and to remain sustainable (Wolff and Pett, 2006), a factor that has also been found in the case of the studied micro firms, as they have come up with numerous innovative ideas for cost reduction/avoidance. Nonetheless, avoiding costs by using preventive measures has saved them from making a decision between 'make' and 'buy'. Hence, the cost decisions based on 'make' or 'buy', which is the norm of TCE, may not be applicable in this situation. As mentioned in the literature, there may be trade-offs to avoiding the costs which are evidenced in the current study (Barker and Zabinsky, 2011). For

instance, using a tighter returns policy to avoid returns has resulted in cost avoidance/reduction. However, this tendency may have led the studied firms to lose trade, as tighter returns policies can alienate customers. This view aligns with the existing literature. For instance, a Harris Interactive survey, as cited in Sonya Hsu, Alexander and Zhu (2009), indicates that 90% of the respondents' purchasing decisions were based on their retailer's returns policy and process. Likewise, a survey conducted by Smith (2005) found that the major purchasing decisions by customers were based on the firm's return policy. Stricter returns policies may result in cost saving in the short term for the studied businesses, however, this tendency may have distanced their customers, resulting in a loss of market share. It is quite a logical assumption to make that small businesses have a small market share (Hudson, Smart and Bourne, 2001; Sok, O'Cass and Sok, 2013) which can be much more severe in micro firms. Alienating customers by using cost avoidance measures, like tightening the returns policy, can have the potential to escalate this situation, putting the MBs in a more vulnerable situation. Nonetheless, the TCE cost determining factor which is related to making the 'make' or 'buy' decision may not be applicable in the situation where the costs are completely avoided-as avoidance means neither making nor buying.

There are, however, some situations of cost avoidance/reduction in the studied businesses, where TCE cost determining factor may be applicable. For instance, Firm D used the informal way of disposing of their unwanted goods by giving them away to a third party (scrap people) who would not charge them a penny. Firm E used an illegitimate way of storing their goods in the loft of the shop without the consent of their landlord, as doing this would save them money. These firms have made the decision to use 'informal' and 'illegitimate' practices to perform these cost-saving tasks. Hence, even if the costs are avoided, the TCE cost determining factor may still be applicable in these situations, as there still is the existence of a 'make' or 'buy' decision, which is the norm of TCE cost determining factor.

The existing literature reveals that firms may relate with other parties, such as suppliers, to make the process more cost effective or to reduce costs, relating with the notion of TCE (Stank et al., 2001; Daugherty et al., 2002; Kocabasoglu et al., 2007). Besides, literature concerning small businesses also reveals that relationships between supply chain partners can bring efficiency and effectiveness into operations (Hong and Jeong, 2006). Aligning with the literature, the current study also shows that the firms related with their suppliers in various ways to help them reduce their costs. For instance, Firms A, B, C, and F used their suppliers' transport system, and Firm A

used their supplier's storage system, leading to cost avoidance. The help and assistance the studied firms received from their suppliers were of two types, which the TCE cost determining factor does not explicitly acknowledge. The businesses received the standard help and support agreed in their terms and conditions with their suppliers, and this assistance was provided to all their buyers, and not just to the studied businesses. As mentioned in Table 8.3, the firms used various ways to avoid or reduce the costs of RL, including the use of suppliers' assistance. Contrary to this, Firms A, C, and E had dialogue with their suppliers which helped them to maintain a favourable relationship, which again gained them extra help and support in addition to what is provided through their standard policy. This behaviour has again helped them to reduce/avoid costs through the maintenance of the relationship. TCE acknowledges aligning with supply chain partners for help and support, but it does not acknowledge or differentiate between these two types of assistance. This may create a problem in the application of this theory for this situation, as TCE does not explain whether the alliance with supply chain partners is based on standard terms and conditions or mutual dialogue and understanding.

Overall, in terms of the attempts made to reduce or avoid costs, TCE is applicable in some cases and not in others. As explained in the situations of suppliers' support for cost reduction/avoidance, TCE also poses confusion on how this theory can be applied.

8.3.2 Visible/Known Costs

RL is a resource-intense act, and firms' priority may be to avoid the costs of RL. However, the costs may not always be avoidable. It was found that businesses will make arrangements to manage those costs which are known to the them.

The existing literature, as shown in Table 8.4, reveals that RL incurs numerous costs. This notion aligns with the current study, as the studied businesses, as shown in Table 8.5, were found to be involved in various cost-related activities which aligns with the costs mentioned in Table 8.4. As Table 8.5 shows, the TCE cost determining factor in the studied businesses is applicable in most of the RL visible/known costs situations. For instance, due to the nature of their business, Firm B was a frequent user of a transport system for the movement of goods. Consequently, Firm B decided to use a business transport system rather than just relying on the suppliers' or the third party's transport system. This led them to secure their own transport system, and this would be a

Authors/Date	Reverse Logistics Costs
Rogers and Tibben-Lembke (1998)	Transportation, landfills, inspection, cleaning, repair, storage, and sorting
Hu et al. (2002)	Collection costs, storage costs, total treatment costs, and total transportation costs
Kovács and Ríkharðsson (2006)	Collection, inspection and sorting, reprocessing, disposal, redistribution
Jian-guol et al. (2007)	Cost of retrieval, cost of inventory, cost of disposal, and, cost of waste disposal
Shi and Li (2011)	Fixed costs, collection costs, processing costs, disposal costs, transportation costs, shortage costs, and storage costs
Khodaverdi and Hashem (2015)	Inspection cost, inventory cost, transportation cost, packaging cost, etc.

Table 8.4 Cost of Reversed Logistics According to the Literature

considerate decision relating to the 'make' which relates to the TCE cost determining factor. Likewise, Firms B, C, E, and F had set up their own proper storage which is an added cost, however, this would be a considerate decision to make owing to the huge amount of goods they needed to store. Firm D used plastic boxes rather than proper storage, because being a newly established business, they had a small volume of accumulations, so investment in proper

Visible/Known Costs of Reverse Logistics in the Studied Businesses
• Business transport system is used (insourcing)
• Proper storage is used (insourcing)
• Specialist engineer for sorting/selecting/inspecting/testing (outsourcing)
• External entity as a bin man for throwing the goods in bin is used (outsourcing)
• Materials for repackaging is used (outsourcing)
• Time and effort for repackaging is used (insourcing)
• Materials for repair and refurbishing is used (outsourcing/insourcing)
• External entity as specialist engineer used for repair and refurbish (outsourcing)
• Materials used for minor repairing (outsourcing)
• Other channels like Face Book, eBay and Gumtree used for disposal (outsourcing)
• Cleaners used for disposal (insourcing)

Table 8.5 Visible/Known Costs of Reverse Logistics in the Studied Firms

separate storage would not be an optimal decision. Hence, the TCE cost determining factor 'make' seems to be applicable in all these situations. As explained earlier, TCE can be applicable in visible/known costs situations, however, TCE may just not be the decisive factor in all of these situations. For instance, firms relate with their suppliers for help and support, however, this is based on both the standard terms and conditions provided by the supplier and also on the mutual

understanding and dialogue with their suppliers. For instance, Firm A relied on their supplier for the storage of unwanted magazines and newspapers; however, this support was provided by the supplier based on the standard support given to all of their buyers. However, Firm E gained extra help and support from their supplier because of the extra effort they put into maintaining dialogue and helping their suppliers. Hence, the TCE cost determining factor may not be the only determining factor in this situation, as the help and support is not the result of the maintenance of favourable relationships with the other parties to reduce costs but is the result of the standard help and support provided by the supplier. Apart from this aspect, the TCE cost determining factor can be applied to all the other visible/known costs situations, as mentioned in Table 8.5.

8.3.3 Hidden Costs

The existing literature depicts that RL is a complicated phenomenon in which the cost is not often clear (Tibben-Lembke and Rogers, 2002; Bernon, Rossi and Cullen, 2011) and that the costs are not 'visible' (Bernon, Rossi and Cullen, 2011; Ravi and Shankar, 2006). This notion not only aligns with the existing study but was also found to dominate the cost situation of the studied MBs, which was not made explicit by the existing RL literature for the large business context. Due to the studied MBs' limited knowledge and awareness about RL, it was likely that this situation would dominate these businesses. As shown in Table 8.6, some of the cost aspects found in the studied business were not visible and remained hidden. Norman and Sumner (2006) highlight several cost types that remain hidden, and they are: hidden labour costs; grey market items; lack of visibility; inability to forecast accurately; credit reconciliation; poor response time; and brand toxicity. As presented in Table 8.6, this study has explored some of the aspects that may relate to hidden costs which align with the existing literature. Table 8.6 shows the factors that lead/trigger hidden costs in the studied businesses, hidden costs for the existing literature, and hidden costs of the current study. As demonstrated in Table 8.6, all of the hidden costs mentioned by Norman and Summer (2006) align with the current study. For instance, the firms' lack of knowledge of the accumulation in the 'legislative' or 'own initiative' take-back category may have led to hidden costs related to 'lack of knowledge of the long-term consequences'. This aspect aligns with the hidden cost related to 'lack of visibility', as mentioned by Norman and Summer (2006). The fact that the firms had no knowledge of goods accumulation in these categories can have serious economic and environmental consequences, not just in the short term, but in the long run as well. Small businesses are rather short-sighted in that they are unable to see the long-term consequences

(Wong and Aspinwell, 2004), which has also been verified in this research for MBs. 'Lack of long term consequences' can be considered as the one of the most frequently occurring and dominating hidden costs in the studied businesses, as this cost, as mentioned in Table 8.6, is

Factors leading/triggering hidden costs in the studied business	Hidden costs for the existing study	Alignment with the existing literature (extracted from Norman and Summer, 2006)
No knowledge of accumulation	Lack of knowledge of the long-term consequences	(1) Hidden labour costs, (2) grey market items, **(3) lack of visibility**, (4) inability to forecast accurately, (5) credit reconciliation, (6) poor response time and brand toxicity.
No precise knowledge of the volume of goods	• Lack of knowledge of the long-term consequences • Hidden resources cost	**(1) Hidden labour costs, (2) grey market items, (3) lack of visibility, (4) inability to forecast accurately,** (5) credit reconciliation, (6) poor response time and brand toxicity.
No precise knowledge disposal options-non-optimal disposal costs	Unknown disposal options Cost	(**1) Hidden labour costs, (2) grey market items, (3) lack of visibility**, (4) inability to forecast accurately, (5) credit reconciliation, (6) poor response time and brand toxicity.
Unknown time and longer time required	• Costs of goods getting unsold, obsolete and damaged due to longer stay • Costs of longer use of storage space	**(1) Hidden labour costs**, (2) grey market items, (**3) lack of visibility, (4) inability to forecast accurately,** (5) credit reconciliation, **(6) poor response time and brand toxicity.**
Processes of reverse logistics-transportation, storing and sorting/selecting/inspecting/testing costs	Hidden resources cost	**(1) Hidden labour costs**, (2) grey market items**, (3) lack of visibility,** (4) inability to forecast accurately, (5) credit reconciliation, (6) poor response time and brand toxicity.
Throwing the goods -economic and environmental costs	Lack of knowledge of the long-term consequences	(1) Hidden labour costs, (2) grey market items, **(3) lack of visibility,** (4) inability to forecast accurately, (5) credit reconciliation, (6) poor response time and brand toxicity.
Illegitimate, informal and unethical behaviour-related costs	Lack of knowledge of the long-term consequences	(1) Hidden labour costs, (2) grey market items, **(3) lack of visibility,** (4) inability to forecast accurately, (5) credit reconciliation, (6) poor response time and brand toxicity.
Store in the corner of the shop	Cost of non-optimal use of space	(1) Hidden labour costs, (2) grey market items, **(3) lack of visibility,** (4) inability to forecast accurately, (5) credit reconciliation, (6) poor response time and brand toxicity.
Space used for bin	Cost of non-optimal use of space	(1) Hidden labour costs, (2) grey market items, **(3) lack of visibility,** (4) inability to forecast accurately, (5) credit reconciliation, (6) poor response time and brand toxicity.
Unfavourable supplier relationship-no extra support apart from standard benefit	Lack of knowledge of the long-term consequences	(1) Hidden labour costs, (2) grey market items**, (3) lack of visibility,** (4) inability to forecast accurately, (5) credit reconciliation, (6) poor response time and brand toxicity.
Tighter return policy - cost of losing customers	Lack of knowledge of the long-term consequences	(1) Hidden labour costs, **(2) grey market items, (3) lack of visibility,** (4) inability to forecast accurately, (5) credit reconciliation, (6) poor response time and brand toxicity.
Unawareness of the benefit. Such as unaware of sustainable competitive advantage	Lack of knowledge of the long-term consequences	(1) Hidden labour costs, (2) grey market items, **(3) lack of visibility**, (4) inability to forecast accurately, (5) credit reconciliation, (6) poor response time and brand toxicity.

Table 8.6 Comparison of Hidden Costs between the Current Study and Existing Literature

repeated in various situations. As shown in Table 8.6, apart from 'Lack of long term consequences', there are other hidden costs that the studied businesses did not seem to be aware of, and they remained hidden from them.

The existing literature depicts that firms are very much focused on their forward logistics, and RL gets inadequate attention from the management. This tendency is '*one reason for the lack of knowledge regarding reverse logistics activities and their subsequent costs*' (Goldsby and Closs, 2000, p.504). This view dominates the current study, as firms were observed dealing more with their forward logistics rather than reverse logistics. Besides, the studied firms did not have all the necessary knowledge related to RL, which was the reason for some of costs remaining hidden (Table 8.6).

The TCE cost determining factor will not be applicable if the costs remain hidden, as there will be no need to make a 'make' or 'buy' decision if the costs are not visible/known to the firm.However, hidden costs can be considered as an important aspect concerning costs decisions, which is not taken account by the TCE theory.

8.3.4 Aligning with the Theory of TCE

As per the second research question with a focus on TCE, it was imperative to understand how the studied MBs address/perceive the cost of RL. Review of the existing literature shows that making an optimal transaction cost decision for RL may not be straightforward, as varied costs facets such as cost avoidance/reduction, visible/known costs and hidden costs situation can exist for RL. This study argues that understanding of all these cost situations in a holistic manner may allow the businesses to make optimal cost decisions for RL, which is not taken account by the TCE.This study makes explicit that due to the studied businesses unawareness on RL and also due to their resource constrained nature, cost situations such as cost avoidance/reduction and hidden costs are likely to dominate the studied businesses. Furthermore, examining TCE as a cost determining theory, in the light of various cost facets that prevail in the studied businesses, has brought further clarity in understanding this theory in the MB RL cost context.It has been found that the TCE cost determining factor may not always be applicable where the decisions related to RL costs must be made, and this is because of the prevalence of various cost facets.The TCE cost determining factor was applicable in almost all cases where there was involvement of visible/known costs. However, the studied firms did not get to the point of considering the TCE

cost determining factor when the costs were reduced/avoided or when the costs remained hidden. TCE may help firms to make cost decisions based on economic rationality. However, it can be argued that this may only be fully achieved if the firm identifies and understands the various cost facets. TCE does not recognise the need to understand the various facets of cost, as recognised by this research, before making rational economic decisions. Hence, it can be argued that identifying and understanding various facets of cost, as explained in this research, for making rational economic decisions can make TCE a better theory. The cost avoidance/reduction and hidden cost situations dominate the studied micro firms. Nonetheless, the firms need to use ways to further identify and understand the hidden cost situation and see the long-term consequences of cost avoidance/reduction, which will then allow them to make rational economic decisions.

8.4 Summary

This chapter has analysed the similarities and differences between the existing literature and the findings of this study. Consequently, this chapter has answered the two research questions, with a focus on the two relevant theories of RBV and TCE.

Academicians and practitioners explain RBV as a theory that complements the logistics research. The resource-based view of the firm has a substantial prospective for logistics research (Olavarrieta and Ellinger, 1997). RL, for some of the large firms, is part of a long-term business strategy to attain sustainable competitive advantage, which again adheres with the theory of RBV (Clendenin, 1997; Wells and Seitz, 2005). The reason behind this view is that RL capability brings economic, corporate citizenship, and environmental benefits (Ravi, Shankar and Tiwari, 2005) which will help bring sustainable competitive advantage to the firm. However, RL is not an easy task, and special capabilities may be required to undertake this process (Jack et al., 2010). Hence, the first research question, with a focus on RBV, was formulated to evaluate whether the studied businesses are capable of going through the process of RL for sustainable competitive advantage. To answer this question, this research has focused on the various key processes of RL which the businesses may have to go through. This research then analysed whether the studied businesses have the capabilities to go through these processes. Consequently, as per the existing literature, various factors including knowledge of the goods accumulation and its volume, capability of going through the process of RL including transportation, warehousing/storage and sorting/selecting/ inspecting, capability of using the disposal options

and the ability of managing the time required to extract value, manage and dispose of the goods are the key aspects of the process of RL, and were explored to assess the RL capability of the businesses.

The studied businesses were found to have some, but not all, of the necessary resources and capabilities related to RL. However, they have developed several resources and capabilities for RL, in their own unique way, which reflects their unique characteristics. The studied businesses have developed capabilities using various tangible and intangible resources, as mentioned in Figures 8.1 and 8.2. As discussed in the above section, it was found that the deployed resources were effective in some cases and not in others. It can also be argued that, in some cases, they may not have used the resources in an effective way. Overall, the studied firms were found to have some of the basic capabilities required for reversing the logistics, and that they did not have all the necessary skills, as mentioned in the literature for the large business context. Nevertheless, the identified capabilities used by these firms were in need of further development and refinement. These businesses, however, were not found using the acquired capabilities for gaining all the benefits attached to the RL capabilities. The literature reveals that RL capabilities can bring both economic and environmental related benefits. However, the studied businesses were only aware of the economic benefits attached to RL and were unaware of environmental benefits, even if the developed capabilities could bring them both the benefits. Hence, at this stage, acquiring knowledge and expertise for further developing the resources required for RL capability seems important for the studied businesses. Besides, with view to the theory of RBV, acquiring knowledge on various benefits attached to RL, to gain the related various competitive advantages, is another milestone to be reached by these businesses.

The transaction cost situation of RL has been seen through the lens of TCE. However, applying the costs associated with RL with TCE is not easy, as TCE may not have the explanatory power to explain the various cost facets involved such as avoidance/reduction of costs, known/visible costs and hidden costs.Nevertheless, this research argues that the ability to examine the transaction cost in the light of these cost facets may bring clarity in RL cost decisions. Hence, as per the second research question, it was imperative to understand how the studied businesses address/perceive the costs of RL. As per the findings of this study, it was found that all three costs facets pevail in the studied businesses. It was also found that the cost avoidance/reduction and hidden cost situation dominated the studied micro firms. Due to their limited resources and limited

knowledge on RL, the studied firms were found giving priority to avoid/reduce the cost of RL. However, they may need to plan more and use more effective ways of avoiding the costs, as the preventive measures used for avoiding costs were not always found to be giving the desired result. The firms may also need to understand that the avoidance of cost does not always bring favourable conditions, as there may be some trade-offs to cost avoidance, which was severe in the studied micro firms. The studied firms may need to recognise the long-term consequences before using measures to avoid costs, as short-term cost avoidance measures may bring long term adverse consequences. Due to limited knowledge and short sightedness, the studied firms were likely to make this situation worse. The studied firms also need to acquire some knowledge on the actual cost of RL, as the findings suggest that some costs remain hidden, which can again be worse in the studied businesses – and hidden costs mean hidden long term adverse consequences. TCE has remained one of the most commonly used theories in explaining the cost situation of RL. Due to the resource intense nature of RL, firms will have to make careful cost decisions, which can again be based on the TCE cost determining factor (Lau and Wang, 2009). Due to their resource constrained nature, this situation has become quite obvious in the MBs context. Nevertheless, various facets of RL costs, such as cost avoidance/reduction, visible/known costs, and hidden costs can affect the way firms address/perceive the cost of RL. This notion has also affected the studied businesses in the application of cost decisions, based on the TCE cost determining factor. The TCE cost determining factor was applicable in some cases and was not applicable in others when the firms were involved in cost avoidance/reduction. The TCE cost determining factor was applicable in almost all cases where the costs were known/visible to the firm but was not applicable when firms did not know the costs as they were not visible to them. This means that taking account of all these cost facets can allow firms to see the cost situation more clearly. TCE does not take into account of the various cost facets for making rational economic decisions, which this research acknowledges as one of the limitations of this theory.

Acquiring knowledge on the significance of RL and treating RL as a mainstream business activity can provide businesses with the skills necessary to understand the various capabilities and cost aspects related to the phenomenon (Vijayan et al., 2014). Consequently, this situation may help them to identify the necessary resources to further develop their capability, which again will assist them in making optimal RL cost decisions.

Chapter 9: Conclusion

9.1 Introduction

The purpose of this study is to explore the capabilities and costs of going through the process of reverse logistics for MBs. Previous research on RL has been focused on large businesses, and the role of MBs has largely been ignored. This is a significant gap, as MBs account for 91.5% of all enterprises, compared to 7.3% categorised as small, 1.1% as medium, and 0.2% as large businesses (European Commission, 2008). This figure confirms that compared to small, medium, or large businesses, MBs are likely to make significant impact, both economically and environmentally. Hence, RL in MBs if not managed properly can bring huge economic and environmental impact. From a pragmatic point of view, this research addressed the issue using a two-phase research approach. The first phase explored the scope of the issue, using 120 structured surveys and 15 interviews in the southwest of the UK, to understand the breadth of detail available on RL in MBs. The second phase took a detailed and immersive approach developing six MB case studies through interviews and participant observation.

9.2 Research Question

Based on the current literature review, the most appropriate area for theory development oriented around the way the studied businesses used the resources to build capabilities, which has a relationship with the theory of Resource Based View. Another area of theory development oriented around the way the studied businesses address/perceive the cost of RL has a relationship with the theory of Transaction Cost Economics. This led to the following two research questions:

> **RQ1:** Do micro businesses have the capabilities to go through the process of reverse logistics for sustainable competitive advantage?
>
> **RQ2:** How do micro businesses perceive/address the cost involved in the process of reverse logistics?

The findings of this research with relation to, both, capabilities and costs are summarised below.

9.2.1 Research Question 1

> **RQ1:** Do micro businesses have the capabilities to go through the process of reverse logistics for sustainable competitive advantage?

The first research question was formulated to find out whether the studied businesses have the capabilities to go through the process of RL for sustainable competitive advantage. The existing literature depicts that RL is a process (Rogers and Tibben-Lembke, 1999). Consequently, to examine the capabilities of RL in MBs, various steps in the process of RL along with those aspects that are likely to affect the process were explored. In due course, the focus of the study was to explore: capability of understanding and managing goods accumulation in various categories; capability of understanding and managing the volume of goods accumulation; capability of processing RL (transportation, warehousing/storage and sorting/selecting/inspecting); capability of identifying and using the various disposal options; time management for RL; and drivers and barriers of RL.

It was found that all of the firms have goods accumulation in their reverse channel, and all firms go through various processes of RL. As mentioned in Figures 8.1 and 8.2 of Chapter 8, the studied firms were found using both tangible and intangible resources to build resources and capabilities for reversing the logistics. As analysed in section 8.1 and 8.2, the studied businesses may have the capability to identify and develop not all, but some of the key resources and capabilities required for RL. Resources and capabilities such as tacit knowledge gained from past experiences, time and effort, and supply chain relationships were the dominant resources and capabilities used, among others. It has also been analysed that the identified resources and capabilities used may not have given the firms the desired result in all situations, which means that these resources and capabilities may need further development and refinement. For instance, as shown in Figure 8.1 in Chapter 8, firms used tacit knowledge gained from past experiences for almost all the activities related to RL. However, tacit knowledge has not given them the desired result in every situation. For instance, they did not have adequate knowledge to understand that goods can accumulate in the 'legislative' or 'own initiative' take-back categories, which brought the potential to bring both economic and environmental adverse consequences. Tacit knowledge was the only knowledge base they used for processing RL. For instance, they used tacit knowledge to understand the volume of the goods accumulation and this knowledge was also used to understand the time required to manage these goods. However, tacit knowledge, as resource, neither provided them with the information of precise volume, nor helped them to understand the exact timescale required to manage these goods, which brought further complications in managing these goods. Tacit knowledge has also been used as 'precautionary

measure' for reducing or avoiding the volume of goods accumulation. However, the precautionary measure used to avoid customer returned goods had the potential to alienate their customers, resulting in the escalation of low market share, which they already have. This shows that they may need to further refine and develop their knowledge with some formal and contemporary knowledge, which may be only possible through formal education and training. Likewise, supply chain relationships were used as resources, but the support they received from the suppliers was mainly based on standard terms and conditions which the suppliers provide to all of their buyers anyway. Micro firms, as shown by Firm E, need to learn how to gain more than what is mentioned in the terms and conditions, which will again help them to further develop resources like supply chain relationships.

The resources firms used to build their capabilities for reversing the logistics were not balanced, as some resources, like tacit knowledge gained from past experiences, time and effort, and supply chain relationship were found to be used heavily by almost all businesses, for almost all steps in the RL process. Contrary to these resources, resources like business transport system was used only by Firm B. Charitable organisations and illegitimate behaviour were only used by Firm E, and informal behaviour was used by Firm B.

It was found that the deployed resources were effective in some cases, and ineffective in others. It can also be argued that, in some cases, firms may not have used the resources in an effective manner. Overall, the studied businesses were found to be lacking in all areas in the process of RL but were found to be developing their capabilities in their own unique way reflecting their unique nature. This capability may have the potential to provide them with sustainable competitive advantage. However, the studied firms had the knowledge of economic gain which could be attained through RL and they did not have the knowledge of environmental related gains. This also means that they were likely to achieve economic related competitive advantage but were less likely to attain the environmental related competitive advantage, as they had knowledge of economic benefit derived through RL and lacked the knowledge related to environmental benefits. Hence, the studied businesses may need to further develop and refine their resources and capabilities, and in addition, need to learn how to fully use the RL capabilities for achieving various advantages, which would again provide them with sustainable competitive advantage.

9.2.2 Research Question 2

> **RQ2:** How do micro businesses perceive/address the costs involved in the process of Reverse Logistics?

The second research question was formulated to find out how the studied business address/perceive the costs of RL. As per the existing literature, RL is a resource-intense task with numerous associated costs (Shi and Li, 2011; Khodaverdi and Hashem, 2015). Furthermore, existing literature depicts that RL holds various cost facets, such as cost avoidance/reduction (Lau and Wang, 2009; Rogers et al., 2012), actual/known costs (Shi and Li, 2011; Khodaverdi and Hashem, 2015) and hidden costs (Norman and Summers, 2006), which may affect how the firm addresses/perceives the cost of RL. Nonetheless, this study argues that firms may be able to make rational economic decisions for RL, if they identify and understand these cost facets in a holistic manner.

The findings show that cost facets such as cost avoidance/reduction, known/visible costs and hidden costs situation prevailed in the studied firms, which was likely to bring further complications for these businesses in terms of addressing the costs in a rational and optimal manner. Nonetheless, the priority of the studied businesses, due to their resource constrained nature, was to avoid/reduce the costs. The studied firms avoided/reduced the costs of RL by using various precautionary measures to avoid accumulations in the first place. However, the options they used for cost avoidance/reduction sometimes led the firms to make some trade-offs, without them realising. For instance, almost all the studied businesses, as mentioned in Table 8.3 of Chapter 8, used precautionary measures of some kind to avoid or reduce goods accumulation in the 'unsold and excess' category. However, as shown in Table 7.17 of Chapter 7, most of the goods in these businesses accumulated in the 'unsold and excess' category. This shows that the preventive measures used may not have been effective. In fact, preventive measures used to avoid costs can potentially backfire, a fact that the businesses often do not realise. For instance, all the businesses used tighter returns policies to avoid/reduce the accumulation in the 'customer return' category, which they believed would avoid/reduce the cost of processing these goods. However, tightening the returns policy runs the risk of alienating customers (Smith, 2005; Sonya Hsu, Alexander and Zhu, 2009). This would lead to fewer customers, ultimately decreasing their already small market share.

Nevertheless, due to their limited knowledge and awareness of RL, it became more likely for the costs to remain hidden in the studied businesses. For instance, the firms' lack of knowledge of the accumulation in the 'legislative' or 'own initiative' take-back categories led to hidden costs related to 'lack of knowledge of the long-term consequences'. The fact that the firms had no knowledge of goods accumulation in these categories can have serious economic and environmental consequences, not just in the short term, but in the long run as well. It has been strongly verified in this research that, compared with larger businesses, MBs may be much less aware of RL, be more short-sighted, fail to acquire the capability to see the long-term consequences. The costs attached to lack of long term planning and the consequences of this is considered as one of the most frequently occurring and dominating hidden costs in the studied businesses. This is an issue which is repeated in numerous situations; as shown in Table 8.6, apart from 'lack of long term consequences', there are other hidden costs that the studied businesses did not seem to be aware of, which remained hidden from them. The studied businesses could never consider all of the hidden costs as costs of RL, which were likely to pose long term adverse consequences.

It was, however, found that the businesses arranged to pay for those costs that were visible and/or known to them. Nonetheless, due to their resource constrained nature, the firms used a cost-effective way to address the known/visible costs by using various available resources. As mentioned in Figures 8.1 and 8.2 of Chapter 8, the firms used a number of resources to pay for the costs associated with RL. Tacit knowledge gained from past experiences, time and effort, and supply chain relationships as intangible resources, and private transport system and storage space as tangible resources, were the resources most frequently used to compensate the cost of reversing the logistics. The firms made arrangements to pay for the known/visible costs using various tangible and intangible resources. However, due to their resource constrained nature, these businesses were also found using practices that would prove to be a cheaper option for them, but which were unethical, illegitimate, informal, or unsustainable. For instance, Firm E used an illegitimate practice, and Firm B used an informal practice to avoid costs. Firm E illegitimately stored their goods in the loft of the shop to save on storage costs, even though this was forbidden by their landlord. Firm E gave away their unwanted goods to scrap people who would not charge them a penny, however these people would informally process these goods, which again had the potential to bring harm both to human health and the environment.

Overall, various cost situations prevail in the studied businesses, which has been explored by this research in a holistic manner. Nonetheless, as discussed in the above section, all of the approaches used for addressing the known visible cost or approaches used for cost avoidance/reduction may not prove to be good for the studied business in the long run, which the businesses did not realise. Hence, the studied firms, apart from becoming more vigilant regarding the hidden cost that prevail in RL, also need to acknowledge the long term adverse consequences of the way they avoid, reduce or address the known/visible costs of RL.

9.3 Research Contribution and Implications

This research is characterised as one of the first research projects of its kind that explicitly looks at the RL aspects concerning MBs, to understand their capabilities and costs, which to date has been focused primarily on large businesses. The theoretical lenses of RBV and TCE used in this study have again helped to explore some unexplored aspects concerning the capability and cost in the MB RL context. This approach has provided a nuanced view of how MBs perceive both the capabilities and cost aspects concerning their businesses. Consequently, this study offers widespread potential for new and improved research in this field. This research contributes both practically and theoretically, which has implications for managers/practitioners, researchers and policy makers, which will be discussed in the following sections.

9.3.1 Theoretical Contributions

This research has made some unique and distinct theoretical contributions with relation to RL in MB context, which is outlined below.

First, this research contributes by being the first study of its kind to identify and explore how the resources and capabilities for RL may differ in the MB context from those mentioned in the literature for the large business RL context. This means that MBs may have a unique way of identifying and developing the resources to develop RL capabilities, which reflect their unique nature. This research makes the contribution by explicitly identifying these differences which are outlined as follows:

(i) Literature on RL reveals that goods can accumulate in various categories and that businesses may need the capability to understand these accumulations in order to manage RL. Consequently, as per the literature, goods can accumulate in the

categories of unsold and excess (Rajagopal, Kaliani Sundram and Naidu, 2015); customer returns (Bernon and Cullen, 2011); damaged, broken, expired, obsolete (Bernon and Cullen, 2007; Sarkis, Helms and Hervani, 2010); legislative take-back (Thierry et al., 1995); own initiative take back (Nikolaou, Evangelinos and Allan, 2013) and recalled goods (Sharma, Garg and Agarwal, 2014). However, this research on MBs makes explicit that, due to their limited knowledge and short sightedness, they are extremely unlikely to have the capability to understand the 'legislative' and 'own initiative' take-back categories. This situation is likely to have both economic and environmental effects.

(ii) Literature on RL reveals that having knowledge of the volume of goods can help in the management of RL in an effective and efficient manner (Dias, Junior and Martinez, 2016). Literature, however, also reveals that it may not be easy to know the volume of goods due to low levels of reporting and transparency in this area (Rogers and Tibben-Lembke, 2001; Cullen et al., 2013). There is evidence of various techniques mentioned in the literature that can be implemented to understand the volume of goods, for instance, RFID (Lee and Chan, 2009) and a calculated RL network design (Mutha and Pokharel, 2009). Moreover, Bernon and Cullen (2007) for UK context identified return rates of 30% for catalogue retailing, 4% for durable products, 10% for books, and 10% for music and entertainment. This research, however, makes explicit that it may be far more difficult to estimate the volume of RL goods in the MB context, as they neither use any techniques to keep account of RL goods nor know the precise volume of these goods. It was found that speculating the volume, using tacit knowledge gained from the past experiences, was the norm of understanding volume of RL goods in these businesses.

(iii) Literature also reveals that the volume of goods can be reduced (Stock, Speh and Shear, 2006; Bernon, Rossi and Cullen, 2011) for cost reduction. Literature also explains that there may be trade-offs in reducing the volume (Sonya Hsu, Alexander, and Zhu, 2009; Smith, 2005). This research, however, makes a theoretical contribution by making explicit that MBs use various precautionary measures to reduce the volume of RL goods, to reduce the related costs, without realising the various trade-offs attached to it. Short sightedness is one of the prime reasons these

businesses adopt this strategy, as being micro in nature they are not able to see the long-term consequences.

(iv) Literature reveals that understanding the time required to manage RL goods is important. At the same time, it is revealed that having the capability of managing the reversed goods in short period of time is important, as this helps to prevent obsolescence, expiry, breakage, and other damage, resulting in cost reduction and economic savings (Lieckens and Vandaele, 2007; Min and Ko, 2008). Hence, various time management techniques can be used by the firms to manage the time optimally. Lieckens and Vandaele (2007) discovered that inventory holding costs and lead times relate to products' cycle time. Blackburn et al. (2004) evaluated network design from the perspective of the time value of products. Bernon, Rossi and Cullen (2011) suggest the requirement of a responsive supply chain to maximise the opportunity for re-use before they become obsolete. The current research makes a contribution by making explicit that knowing the exact time of managing the goods or managing the goods in short period of time may not be easy in the MBs context. MBs were naturally found to have less time and they gave less importance to RL. Moreover, they were found to not use any time planning techniques, as mentioned in the literature. Hence, speculating the required time was the norm found in these businesses.

(v) Literature reveals that various resources such as transport system, vehicle routing and network technique (Srivastava, 2008;), storage/warehouse and related techniques (Dowlatshahi, 2012), and skilled labour (Du and Evans, 2008) are required for running the process of RL. This research, however, contributes by making explicit that MBs, besides the resources mentioned in the literature, are also likely to use resources such as 'illegitimate' behaviour to process RL. For instance, Firm E was found illegitimately using the loft of the shop to store discarded goods, even though the landlord did not want them to do this. MBs are likely to use these types of behaviours to reduce costs, due to their resource constrained nature.

(vi) Literature reveals that various disposal options are available for RL goods, and firms may need to be capable of identifying and using the most appropriate (Thierry et al., 1995; Tibben-Lembke and Rogers, 2002). The identified disposal options have been presented in Table 2.1 of Chapter 2. This research makes a further contribution by

making explicit that MBs, due to their resource constrained nature of various types, are less likely to use all the options mentioned in the literature. For instance, they were not able to use options such as sending goods to CRC; selling via outlet; remanufacture/refurbishing; or selling to broker, which are the options frequently used by large retailers. Moreover, this research contributes by highlighting that MBs are likely to use more unusual resources as disposal options, which have not been identified in the RL literature for the large business context. Disposal options related to informal, unsustainable and unethical activities, which were likely to be found in developing countries as mentioned in section 8.2.3, were also identified in the studied MBs of UK. It was found that their resource constrained nature forces these businesses to use these behaviours to dispose of the RL goods.

(vii) Literature reveals that businesses are driven to become involved in RL due to economic, legislative, corporate citizenship, and environmental and green issues (Ravi, Shankar and Tiwari, 2005). This research, however, makes a contribution by demonstrating that the studied MBs were less likely to get involved in RL for all these reasons, as they were found to be involved in RL activities for purely economic reasons. This also means that these businesses receive the economic benefits attached to RL and do not receive the environmental benefits, as they do not conduct RL for environmental reasons.

(viii) The above points make it clear that this research contributes by showing the explicit differences in the way MBs identify and develop the resources to develop RL capability. Moreover, this discussion also makes an explicit theoretical contribution by making it clear that the resources identified by MBs may be in need of further refinement and development for them to progress with the RL capability. As discussed in section 8.2 and 8.3 of Chapter 8, they use behaviours including, illegitimate, informal, unsustainable and unethical behaviour to progress with RL. This research contributes by clearly stating that these behaviours can hamper these businesses in the long term, which may need consideration.

Second, as discussed in the above sections and in relation to the theory of RBV, this research contributes by exploring new dimensions related to MB RL capability. Literature reveals that RL capability, as per the theory of RBV, can provide firms with the chance to achieve competitive

advantage (Markley and Davis, 2007; Schilke, 2014). RL brings both economic and environmental benefits (Ravi, Shankar and Tiwari, 2005), which can again be used by the firms for sustained competitive advantage. Use of RBV theory has helped to understand that MBs identify and develop various resources to build RL capabilities. However, due to their unawareness of all the benefits attached to RL, they were found to be less likely to fully achieve the competitive advantage attached to RL. Studied firms had knowledge of the economic benefit attached to RL but they did not have knowledge on the environmental related benefits, even if they have developed the related capabilities. Hence, they were likely to achieve competitive advantage related to economic gain but were less likely to gain competitive advantage related to environmental benefits. This means that the RL capability in the MB context may be in a state of underutilisation, due to their limited knowledge on RL. For instance, Firm D got involved in 'own initiative take-back' by bringing in used and second-hand goods. They revealed that they did this for economic reasons. However, bringing in used and second-hand goods and processing them for reuse has helped to reinstate these products, which has again brought a good environmental impact (Srivastava and Srivastava, 2006). Firm D, however, did not realise the environmental benefits and the competitive advantage attached to it, even though they had developed the capability for RL. Hence, this type of situation in MBs can prohibit RL capability from fully aligning with the theory of RBV.

Third, this research contributes by making explicit that the way MBs address/perceive the cost of RL may be different from those mentioned in the literature for the large business RL context. This research contributes by highlighting these differences, as outlined in the sections below.

(i) RL literature shows that various cost facets like cost avoidance/reduction (Rogers, Melamed and Lembke, 2012), visible/actual costs (Shi and Li, 2011) and hidden cost (Norman and Sumner, 2006) can prevail in large business RL cost situations. RL literature, however, do not consider seeing these cost facets in a holistic manner. This research, as discussed in section 4.3 of Chapter 4 and in section 8.3 of Chapter 8, makes a theoretical contribution by making it explicit that identifying and considering these cost facets in a holistic manner can help make a rational and optimal economic decision.

(ii) This research, as mentioned in the above section, contributes by identifying and bringing these cost facets together and analysing them in a holistic manner for MB RL. Furthermore, this research contributes by exploring that MBs, due to their resource constrained nature, give priority to avoid/reduce the RL costs using various precautionary measures. The idea of prioritising a particular cost situation among the three existing cost situations has not been considered by the previous researchers of the large business RL context.

(iii) Literature reveals that RL costs can remain hidden. However, the severity of these costs among other cost facets is not discussed by the earlier researchers. This research makes another theoretical contribution by highlighting that the hidden costs situation can be severe in micro firms. As presented in Table 8.6 and as explained in section 8.3.3 of Chapter 8, the hidden costs situation dominates the studied MBs. Due to their unawareness, little knowledge and short sightedness with relation to RL, this research found that there are hidden costs for all aspects of RL in these businesses. This attitude also reflects their nature of being small.

Fourth, in relation to the theory of TCE, this research contributes by exploring a new way of addressing/perceiving RL costs in the MB context. Literature argues that TCE may help firms to make cost decisions based on economic rationality, as it helps to decide between 'make or 'buy' decision. This research, as discussed in section 4.3 and section 8.3, however, argues that a rational economic decision for RL can only be achieved if various cost facets of RL such as cost avoidance/reduction, actual/visible costs and hidden cost situation are identified and analysed together for decision making. TCE, as per the existing literature, does not recognise the need to identify and analyse these various facets of cost together for making rational economic decisions. At the moment, TCE merely advocates making the rational economic decisions based on 'make' or 'buy'. It was, however, found that 'make' or 'buy' decision is not only the cost decision the studided MBs would make. MBs, who are resource constraint, also considered cost reduction/avoidance, which is not considered by TCE. Nevertheless, TCE also does not take account of the hidden cost situation, which dominates the cost situation of the studied micro firms. Hence, this research makes another theoretical contribution by arguing that identifying and

understanding various facets of cost for making rational economic decisions can make TCE a better theory.

9.3.2 Practical Contributions and Implications

This research has the potential to inform the MBs' unexplored characteristics and practices, which is again believed to contribute in providing some significant recommendations for practitioners and policy makers.

9.3.2.1 Implications for the Owner/Manager

This study has made an in-depth analysis of six micro retailers, with the engagement of the methodology that warrants the development of a rich picture of the RL practices of MBs. Hence, this research makes some practical contributions which have implications for the owner/managers of MBs.

As shown in Figures 8.1 and 8.2 of Chapter 8, this research contributes by identifying and building on the existing literature regarding various resources MBs may use to build their capabilities. The identified resources and capabilities can be used by real world MB managers and practitioners to identify and develop their own resources and capabilities. As explained in Chapters 7 and 8, resources deployed by the studied firms have been effective in some cases, however, there have been cases where the deployed resources may not have yielded the desired result. Hence, it is recommended that owner/managers should not only rely on identifying and exploring these resources but should also work on using these resources in effective way, which may yield the desired result. For instance, owner/managers, as per the characteristics of MBs, have been found relying heavily on the tacit knowledge gained from past experiences as a resource, which has not always been entirely successful. Hence, it is recommended that these owner/managers also need to seek some formal education and training which will help them in their decision making.

The supply chain relationship has been found as another dominant resource these businesses use, but in most cases, they are not getting any more than what is set out in the standard terms and conditions by their suppliers. Hence, as mentioned by Firm E, dialogue and activities that would yield them extra support in addition to that provided in the standard terms and conditions are recommended. This research has also contributed by identifying some unusual resources like

informal, illegitimate, unethical and unsustainable behaviour, which the studied firms used as resources to reduce/avoid the cost of RL. Small businesses are unable to see the long-term prospects, and are rather short sighted in this respect, a factor that was also prevalent in the studied MBs (Wong and Aspinwall, 2004). These types of behaviour have the potential to bring serious consequences in the long run. Owner/managers of these types of businesses may not have the same resources and capabilities as large businesses, but, with a little planning, they can assimilate and organise knowledge that can again help them to cope with their ever-changing business situations (Kraus, Harms and Schwarz, 2006; Johnston, Gilmore and Carson, 2008; Blackburn, Hart and Wainwright, 2013). For instance, due to their micro size, these businesses' owner/managers may not have the knowledge of the other drivers related to RL. In other cases, even if they have the knowledge they may just ignore this, because they are micro in size. This could also be because they have poor environmental awareness and limited resources to pursue the environmental initiatives (Petts et al., 1999; Simpson, Taylor, and Barker, 2004) which is also confirmed in this research for MBs. However, this results in an unfavourable cumulative impact on the environment. Small businesses may not be compelled by law to take environmental initiatives, as is the case for large enterprises (Tilley, 2000). Large businesses are pressurised by their shareholders to take environmental initiatives, but this may not be the case with small businesses as they do not have shareholders (Sarbutts, 2003; Perrini, Russo and Tencati, 2007) which can also be the situation for the micro firms. However, owner/managers of MBs should understand that the world economy and environment is in a changing state and being environmentally friendly and taking environmental initiatives is not only expected from the large businesses but is now expected from all sizes of business (Campos, 2012). Due to the cumulative impact made by these types of businesses, policy makers are formulating such laws which may prove to be tough for these businesses (Hillary, 2004). Hence, it will be in the favour of the owner/managers of these types of businesses to understand the environmental issues on their own (Tilley, 2000), which will again help them to prepare themselves for the upcoming laws (Louwers et al.,1999).

9.3.2.2 Implications for Policy Makers

RL has a deep-rooted relationship with the environment (Srivastava and Srivastava, 2006; Demirel and Gökçen, 2008; Ramos, Gomes and Barbosa-Póvoa, 2014). Apart from economic benefit, RL '*… has become a blanket term for efforts to reduce the environmental impact of the*

supply chain' (Rogers and Tibben-Lembke, 2001, p.130). This enhanced supply chain is capable of effectively using resources that were not previously considered or utilised, as goods flowing backwards are seen as valuable resources (Dowlatshahi, 2000) which also brings favourable impact on the environment (Srivastava and Srivastava, 2006; Demirel and Gökçen, 2008; Ramos, Gomes and Barbosa-Póvoa, 2014). There is a largely accepted consensus among researchers that smaller businesses may make a small individual environmental impact, but the cumulative impact may be devastating (Petts, 2000; Williamson and Lynch-Wood, 2006). Hence, the environmental aspects concerning RL are explored in this study, which is another practical contribution that may have implications for policy makers and other related organisations.

It is understandable that, due to their small size and resource constrained nature, these businesses lean more towards the economic spectrum of RL and are not interested in the environmental consequences. However, there are some acts that they undertake for economic benefit, but that have the potential to impact positively on the environment. For instance, almost all the studied firms used ways to dispose of their goods either by sending the goods back to their suppliers, reselling them at reduced prices, or reselling by changing the display area for economic gain. Firm B was involved in bringing back used and second-hand goods and reselling them by repairing and refurbishing them. Even if these businesses were involved in these activities for purely economic reasons, this act assisted in reinstating the products, bringing favourable environmental impact. Hence, policy makers and other organisations should assist in encouraging, rewarding and further developing these behaviours (Berry and Rondinelli, 1998).

As found in the current study, which again has alignment with the existing literature, MBs due to their small size have limited resources and are therefore unable to take all the necessary steps related to environmental aspects (Petts et al., 1999). For instance, as discussed in Chapters 7 and 8, the studied businesses did not have knowledge of reversing goods both in the 'legislative' and 'own initiative' take-back categories, which had the potential to bring adverse impact to the environment. Furthermore, all of the studied businesses practiced throwing their goods in the bin, even if they considered this their last option. It was found that these businesses were not motivated by environmental and other such issues, but economic gain was their main priority. This means that these businesses do practice some unsustainable, unethical, illegitimate and informal practices for cost saving and cost avoidance, which needs to be closely monitored by these types of authorities. The authorities, then, either need to formulate new laws or amend the

existing laws. Besides, as necessitated by firms like Firm A, C and E, businesses are desperate to acquire knowledge on issues like RL, where providing necessary knowledge and guidelines may be important. Hence, this research makes a practical contribution by exploring the environmental issues related to these businesses which can again be used by organisations like The Small Business Act (2008) and policy makers for providing knowledge, guidelines or even for formulating or amending laws. However, the law or guidelines may not be effective unless these authorities formulate them according to the nature and current practices of these businesses (Perrini, Russo and Tencati, 2007).

9.4 Research Limitations and Recommendations for Future Research

The limitation that emerged from this research will help to guide future researchers in further research in the relevant fields. As this research is exploratory (Yin, 2003) and being first of its kind, it also explored and opened various new areas of research, which will be explained in the sections below.

9.4.1 Limitations of the Research

The sample businesses for this study were selected using the purposive sampling method and all the samples were from the Devon and Cornwall area of the UK. Study of RL in the MB context is an evolving phenomenon which affects all types of MBs who deal with logistics. Hence, for a slightly different focus, future researchers can choose samples from other areas as well, especially from developing countries, as this research was conducted from the sample gathered from a developed country. This type of approach will help to replicate and further validate the findings of this research.

Between four and ten cases are deemed appropriate for conducting research based on the case study approach (Eisenhardt, 1989). However, even if six cases were deemed appropriate for this study, the studied businesses being micro in size, had only one or very few employees. Hence, there was no or very little chance of interviewing other members of these businesses. Micro retail owners were found to be reluctant to let their staff members and other external entities be interviewed by the researcher. In addition, the participant observation for this study was conducted for only a week; hence, there was again little chance of meeting the other external entities for interviewing purposes. Nevertheless, everything possible was done to collect all the required data within a short period of time (Bernard, 1994). Future researchers may consider

choosing more samples if they want to gather more interviews in researching these types of businesses. Researchers can also make a longitudinal study (Jorgensen, 1989; Lincoln and Guba, 1994) which may create the possibility of meeting the external entities who are not available all the time, for interviewing and observation purposes.

There was also no consideration of established micro retailers who may be considering 'legislative' or 'own initiative' take-back. However, there are past researchers who have considered these issues before choosing their sample (Prahinski and Kocabasogul, 2006; Lifset, Atasu and Tojo, 2013). Hence, this research is not an actual representation of the micro retail firms who practice these issues, but was a random selection. Future researchers may find such specific samples and base their study around a more in-depth understanding of these issues.

9.4.2 Recommendations for Future Researchers

This study provides a strong rationale for studying RL, with context to smaller businesses, like MBs. This rationale can be used by future researchers to develop further study related to economic and/or environmental issues in the MB context. Besides, this research being the first of its kind, it has explored previously unexplored areas which warrants further investigation by future researchers.

RL itself being an under-researched phenomenon (Kumar and Putnam, 2008) and this study on micro retail RL being one of the first of its kind, this research adopted the exploratory study style (Yin, 2003). Hence, this study has considered number of issues and variables related to the studied phenomenon. This approach has helped in exploring a holistic picture of capabilities and cost in MBs. Future researchers, for a different perspective, can take one step at a time and explore each issue in turn. For instance, they can research either the external entities, or the cost aspects of these businesses. This approach will not only help to explore these issues further in an in-depth manner, but will also help in replicating and validating the current study.

This study found suppliers as one of the dominating resources used by MBs. Future research can be conducted on the suppliers of MBs to understand how they relate with their micro buyers. This study learned about the suppliers' actions from the MBs' perspective, and their suppliers' view point was not heard.

The poor implementation of legislation by the legislative authority (Nash and Bosso, 2013) could be one of the reasons why the MBs fail to understand environmental issues like RL. However, to confirm this matter, future researchers could work on further exploring the environmental policy making issues in MBs. Additionally, as necessitated by firms like Firms A, C and E, they are eager to acquire knowledge about the environmental and legislative aspects, as they were found to not have any, currently. Agencies like the Small Business Act (SBA) who were established to tackle these types of issues seem not to have reached these firms, which can be further explored by future researchers.

The in-depth review of the literature on RL has shown that this phenomenon does not stand in isolation, but has a deep-rooted connections with other environmentally-related phenomena such as extended producer responsibility (Sachs, 2006), take-back legislation (Atasu, van Wassenhove and Sarvary, 2009), closed loop supply chain (Dekker et al., 2004), product stewardship (Michaelis, 1995), cradle to cradle (Kumar and Putnam, 2008) circular economy (Andersen, 2007) and sustainable supply chain (Ashby, Leat and Hudson-Smith, 2012). It has been found that these are the philosophies for achieving both economic and environmental initiatives, where RL can be considered as one of the significant vehicles to fulfil these agendas. Researchers who are working and researching on such environmentally-related issues can either incorporate, or build upon, the findings of this research.

Research on MB RL, being an overly under-researched area, the qualitative research method under the case study approach was deemed appropriate, which has allowed an in-depth inquiry (Lau and Wang, 2009; Dowlatshahi, 2012; Ngadiman, et al., 2016). The in-depth research and analysis made in this study has helped to identify, explore and confirm the variables related to RL and related issues in MBs. Future researchers, now, can use the outcomes of this research as a base to conduct research based on quantitative approaches (Aydelotte, Fogel and Bogue, 2015).

9.5 Summary

Existing literature suggests that RL can be an important phenomenon for the large business context, and the outcome of this study suggests that RL can be an equally important aspect for the MB sector as well. This research has made several findings with some unique theoretical and practical contributions, which can be used by owner/managers, policy makers, and other agencies. Additionally, this research being exploratory in nature and being first of its kind has

investigated previously unexplored areas, which has now opened up several new research fields for future researchers.

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Appendices

Appendix A: Cover Letter for the 1st Phase Research Questionnaire

Dear Participant,

I would like to invite you to participate in a research study being undertaken at Plymouth University. The purpose of this research is to understand how businesses like yours extract value, manage and dispose of products that are unsold, excess, damaged, recalled, returned by customers or, even taken back by you as used products. The insights gained from this research should hopefully help businesses to increase their profits and cut costs whilst helping our environment by reducing waste.

Your participation in this research project is entirely voluntary', but crucial for the success of the project. We will share our results with (the relevant organisation). If you agree to participate in this project, please answer the questions on the questionnaire as best as you can. I would like to assure that your response will remain confidential and anonymous. This questionnaire should take no more than 10 minutes to complete. If you prefer an online version of this questionnaire you may go through the link below.

https://plymouthbusiness.eu.qualtrics.com/SE/?SID=SV5ulHsVEHhiSOpuZ

If you have any questions about this project, feel free to contact me at

Mamata.dhakal@plymouth.ac.uk

Thank you for your time and assistance in this important endeavour.

Sincerely yours,

Mamata, Mel, Bob

Mamata Dhakal	Dr Melanie Hudson Smith	Dr Robert Newbery
PhD Researcher	Lecturer	Senior Lecturer
Plymouth University	Plymouth University	Plymouth University

Appendix B: Questionnaire for the 1st Phase Research

This survey is trying to understand the reverse logistics process., which is how businesses extract value, manage or dispose of products that are discarded by consumers or the businesses, for whatever reasons. This survey contains multiple choice questions and will take you about 5-10 minutes to complete.

This document and the information in it will be provided in confidence, for the sole purpose of understanding the aspect explained above, and may not be disclosed to any third party or used for any other purpose without the express written permission of the participants. Your company's name and the identity you provide will remain anonymous. Thank you.

1. Do you sell physical/tangible goods?
   - Yes, we do
   - No, we don't
2. Please tick as appropriate;
   - we operate only as retailer
   - we operate only as a wholesaler/distributor
   - we operate both as a retailer and wholesaler
   - we operate both as a retailer and manufacturer
   - We operate as a retailer, wholesale/distributor and manufacturer
   - None of the above
3. Do you require more information on reverse logistics?
   - Yes (Choosing 'Yes' option will take you to the reverse logistics information)
   - No (Choosing 'No' will take you to the next research question)

<u>Reverse Logistics Explained:</u>

The issues related to the process of extracting value, managing or disposing of it, once the products gets discarded by consumers or businesses due to various reasons is termed as reverse logistics. Reverse Logistics is concerned with the way companies reverse and deal with the product that remains unsold, excess, obsolete, expired or damaged. This system also deals with goods that are returned by customers because of return policies provided. Goods may have to be taken back for repair or exchange, if, guaranty or warranty is provided. Legislative reasons also mean that, businesses may have to take back used goods that were sold earlier. For example, legislation related to end of life vehicle and WEEE (Waste Electrical and Electronic Equipment). Parts can be extracted from end-of-life products for refurbishing and remanufacturing, metal or plastics can be used for recycling or simply sold to scrap buyers. Companies may recall goods due to fault found. In other cases, companies proactively, may want to deal with products that have reached the end of their life for environmental, CSR and Sustainable reasons.

Reverse logistics is all about the process and system that is related to transportation, warehousing, sorting/selecting/inspecting and above all either extracting value or disposing the goods. This system is believed to bring both environmental and economic benefit giving a competitive edge to the firm. These entire phenomenon is related to getting the product back to the supply chain either for value extraction, for simply managing or for proper disposal which may be known as 'reverse logistics'.

The purpose of this questionnaire is to understand how businesses deal with reverse logistics. The result will be used to understand;

(i) If products accumulate in. reverse channel in business
(ii) The rate/amount of product that accumulates in the reverse channel, if any.
(iii) The reasons why product accumulate in reverse channel
(iv) If records are kept of the rates/reasons of product accumulation in the reverse channel
(v) The motivation of the businesses to deal (extract value, manage or dispose of) with these products
(vi) What happens to the products that accumulate in the reverse channel
(vii) How much time is needed to deal with the goods that accumulate in the reverse channel
(viii) If. businesses will be interested in further interviewing when required

4. How much of the inventory listed below do you have at all times? Please tick as appropriate;

	A lot	moderate amount	little	Very little	rare	Not at all
Goods that are unsold&/or excess (due to any reasons)						
Goods that have come back from customers for repair or for exchange						
Goods that are returned by the customers due to return policy provided						
Goods that are damaged and broken in transport and handling						
Used goods that has been taken back by us due to legislation						
Used goods that has been taken back by us because of our own initiative to remain environment friendly and socially responsible firm						
Goods that has been recalled due to fault found						
Any other types of good, please specify……						

5. How much of the below mentioned inventory do you have currently? Please tick as appropriate.

	0 units	Fewer than 50 units	50-499 units	500-999 units	1000 units or more
Ready to sell, current or productive goods					
Goods that are unsold &/or excess (due to any reason)					
Goods that have come back from customers for repair or for exchange					
Goods that are returned by the customers due to return policy provided					
Goods that are damaged and broken in transport and handling					
Used goods that has been taken back by us due to legislation					

Used goods that has been taken back by us because of our own initiative to remain environment friendly and socially responsible firm					
Goods that has been recalled due to fault found					
Any other types of good, please specify……					

6. How often you keep record of the amount/rate/volume of the;

	Always kept record	Record kept only sometimes	Record not kept at all
Goods that are unsold &/or excess (due to any reason)			
Goods that have come back from customers for repair or for exchange			
Goods that are returned by the customers due to return policy provided			
Goods that are damaged and broken in transport and handling			
Used goods that has been taken back by us due to legislation			
Used goods that has been taken back by us because of our own initiative to remain environment friendly and socially responsible firm			
Goods that has been recalled due to fault found			
Any other types of good, please specify……			

7. What do you do or do you think you could do with these types of goods (if you have or will have any)? Tick all those that is applicable to you.

	Unsold or excess goods (due to any reason)	Goods brought back for repair or exchange	Goods returned by customers due to return policy	Damaged Faulty or Broken goods	Own initiative or legislative take-back goods	Recalled goods	Any other type of goods
Return to vendor supplier							
Resale as new							
Repackage and sell as new							
Direct re-use							
Sell via outlet							
Sell to broker							
Sell to other recyclers and dismantlers							
Donate to charity							
Repair							
Refurbish							

Remanufacture							
Recycle							
Cannibalise							
Incinerate							
Landfill							
Do nothing							

8. What is your motivation for wanting to deal (extract value, manage or dispose of) with the goods that is mentioned in the above questions. Please tick as appropriate.

Dealing with these goods brings customer satisfaction					
Dealing with these goods improves our profitability					
Dealing with these goods help reduces our costs					
Dealing with these goods maintain the ecology and results in better environment					
Dealing with these goods help to show that we are socially responsible firm					
Dealing with these goods help preserves the natural resources that are finite					
We deal with these goods because it brings improvement in the logistics					
Dealing with these goods help us to differentiate ourselves from our competitors and make us more competitive					
We deal with these goods because of the increased landfill costs					
We deal with these goods because in some cases we are bound to do so by law					
We do not know how we should react or deal with these goods					
Any other, please specify……					

9. How long do you think will it take to extract value, manage or dispose of these different inventories (if you get any)? Please tick as appropriate.

	1 day	Less than one week	Less than one month	Less than six months	Less than a year	More than a year
Unsold and excess goods due to end of fashion, trend, season, by product or expired date (or any other reason)						
Goods that is brought back from customers for repair or exchange as part of customer service						
Goods returned by customers due to return policy provided						
Damaged or broken goods due to transportation or handling						
Used goods taken back due to legislation						
Used goods taken back by us due to own initiative for environmental or profit motive reasons						
Recalled goods due to fault found						

Any other goods, please specify……..						

10. Do you have anything else to add about the issues related to the products that are mentioned in the above questions? Please use the space specified for your answer.

11. What number of employees work in your company?
    - 0-9 employees
    - 10-49 employees
    - 50-249 employees

12. What is your annual turnover?
    - less than or equal to 2 million Euro
    - less than or equal to 10 million Euro
    - Less than or equal to 50 million Euro

13. Describe the nature of your business, (for example, food retailer; electric goods manufacturer, wholesale/distributor or household goods)

14. Your business is set up in which geographic region? Please tick and mention as applicable
    - Devon and Cornwall
    - Other, please specify

15. When required we might need to contact for further investigation and arrange for interview. Please let us know if you would be interested in making an interview with us, when required. Please tick as appropriate;
    - Yes, we would be interested in making an interview, whenever required
    - No, we would not be interested in making an interview

16. Please provide us with your information for us to contact you back, when required for interviewing.
    Your Company's name……..

    Trading Name…….

    Address…….....postcode…….

    Contact Telephone……email……

Appendix C: Analysed Themes for the 1st Phase Research

Key Themes		Themes	Codes	Codes Meaning
Themes related to Goods Accumulation	Goods get accumulated	Size of the business	Small turnover	Goods accumulate in unsold and excess category because small businesses have small turnover
			Supplier's big supplies	Goods accumulate in the unsold and excess category because suppliers supply standard size big boxes
			Weak capacity	Goods get damaged/broken/faulty because the small businesses do not have the capacity to purchase branded goods
		Nature of the Goods	Seasonal Goods	Goods accumulate in the unsold and excess category because seasonal goods' sales slowdown in the off season
			Occasional Goods	Goods accumulate in the unsold and excess category because occasional goods (like Christmas related) goods slowdown in the off season
		Pile over the time		Goods accumulate in low quantity but pile up as time passes by
		External forces	Suppliers/Manufacturer Fault	Goods get damaged /broken/faulty due to suppliers' fault
			Transport Companies Fault	Goods get damaged/broken/faulty due to transport companies' fault
		Accidental		Goods get damaged/broken/faulty due to any type of internal accidents
	Avoiding or lessening accumulation	Use tacit knowledge	Learn from previous experience	Businesses avoided/decrease the volume of accumulation because they learn from their previous experience
		Precautionary measures	Inspection	Goods are inspected in advance just after delivery to avoid/lessen damaged/faulty/broken goods
			Tighter return policy	Return policy are tightened and not taking anything and everything back from the customers to avoid/decrease accumulation
		Small Size of the business	No knowledge	No accumulation in the 'legislative' and 'own initiative' categories due to not having knowledge on this
			Not bothered	Businesses are not bothered to have accumulation in the 'own initiative' and 'legislative' take-back categories as they believe they are only a small business
Record Keeping related themes	Records are kept	Small business size	Small volume convenient	Small volume of goods, due to small size business, makes the record keeping easy, hence business keep record of the goods
		Economic Gain	Track goods/suppliers	Records are kept tracking the goods/suppliers of the faulty/broken/damaged goods
			Calculate costs	Records are kept so that it becomes easy to calculate the related costs
			Customer satisfaction	Records are kept for those goods that are returned by the customers for repair/exchange so that a swift action can be taken for satisfying the customers
			Send goods back to suppliers	Records are kept knowing the related suppliers so that the goods can be sent back to them for compensation purpose
	Records are not kept	Not important	Not important	Records are not kept because this activity is not related to the core aspect of the firm and that it is not an important act
		Small Size of the business	Time constraint	Small businesses have less time and that there is no time to keep records
			Less volume	Small businesses have low volume and the know volume does not make differences in the profitability, hence there is no need to keep record
Disposal Options related themes	Small size of the business	Economically informed	Economically Informed	Businesses use the options that have low or no investment and that either brings economic gain or economic savings which, being small, matches with their limited resources of all types
		No Knowledge	No Knowledge	Businesses do not use the other disposal options because they do not have knowledge about them

	Environmentally informed	Environmentally Informed	Environmentally informed	Disposal options are used because they bring favourable impact to the environment
	Suppliers' unhelpful role	Suppliers as a burden	Suppliers as a burden	Suppliers compensate, but, do not take the damaged/broken/faulty/expired goods physically back and leave this for the businesses to manage, creating an added burden
		Suppliers not co-operative	Suppliers not co-operative	Suppliers do not understand the small business problem and help them with their needs, by not co-operating with them
Time required related themes	Longer time	Nature of the goods	Slow moving goods	Long time is required to manage the goods due to the slow-moving nature of the goods
			Seasonal Goods	Long time is required to manage goods because of the seasonal goods nature, as businesses need to wait for another season to sell these
			Expired or obsolete goods	Longer time is required due to the expiry and obsolete nature of goods as when goods get outdated it takes longer to sell
		Technical problem	unavailability of parts and materials	Takes longer time to repair and refurbish due to unavailability of parts and materials
		Size of the business	Unresponsive supplier	Longer time is required because the suppliers take long to respond for the compensation, as they dominate the small businesses
			Limited resources	Longer time is required due to limited and unavailability resources of all types like limited time/ expertise/ labour /knowledge/finance to manage the goods
			No time	Being small business have no time, hence take longer time to manage the goods
	Lessening time	Size of the business/ Economically motivated	Change the display area	Goods are sold quickly for economic gain, by changing the display area to grab attention
			Reduce price	Goods are sold quickly for economic gain, by reducing the price of the goods
			Promote	Goods are sold quickly for economic gain, by using various promotion methods
			Online sales	Goods are sold quickly for economic gain, by using the online sale options like eBay and Gumtree
			Quick customer service	Goods are managed quickly, for satisfying the customers, by quickly serving the customers
	Unpredictable time	Nature of the goods	Slow moving goods	Varied nature of the goods makes the time to manage these unpredictable
			Seasonal Goods	Seasonal nature of the goods makes the time to manage these unpredictable
			Expired or obsolete goods	Expiry or obsolescence nature of the goods makes the times to manage these unpredictable
		Technical problem	Unavailability of parts and materials	Technically, unavailability of the required parts and materials for repair and refurbish purpose makes the time to manage unpredictable
		Size of the business	Unresponsive supplier	Suppliers unresponsive behaviour makes the time to manage the goods unpredictable
			Limited resources time/expertise/labour/ knowledge/finance	Time can be unpredictable due to limited and unavailability of resources of all types like limited time/ expertise/ labour /knowledge/finance to manage the goods
Motivating factor relating themes	Economically motivated	Economic Reasons		Businesses are motivated to manage the goods due to economic gain or economic saving reasons
	Environmentally Motivated	Environmental Reasons		Businesses are motivated to manage the goods for environmental reasons

Appendix D: Disposal Options used by Businesses in the 1st Phase Research

Goods in various category (1 to 6)	**Disposal options used by the studied firms for the 1st Phase Research**																													
	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16	
	Return to vendor supplier		Resale as new		Repackage and sell as new		Direct reuse		Sell via outlet		sell to broker		Sell to other recyclers and dismantlers		Donate to charity		repair		refurbish		remanufacture		recycle		cannibalize		incinerate		landfill		Do nothing	
	Y %	N %	Y %	N %	Y %	N %	Y %	N o	Y %	N %	Y %	N %	Y %	N %	Y %	N %	Y %	N %	Y %	N %	Y %	N %	Y %	N %	Y %	N %	Y %	N %	Y %	N %	Y %	N %
1.Unsold and excess goods	22.5	77.5	77.5	22.5	34.2	65.8	45	55	24.2	75.8	4.2	95.8	5.8	94.2	28.3	71.7	33.3	66.7	27.5	72.5	0.8	99.2	10	90	9.2	90.8	2.5	97.5	59.2	40.8	16.7	83.3
2.Goods for repair or exchange	62.5	37.5	49.2	50.8	30.8	69.2	29.2	70.8	18.3	81.7	0.8	99.2	5.0	95.0	14.2	85.8	50.8	49.2	43.3	56.7	0.8	99.2	3.3	96.7	5.8	94.2	0	100	74.2	25.0	10	90
3.Goods returned due to return policy	60	40	53.3	46.7	34.2	65.8	30.8	69.2	18.3	81.7	0.8	99.2	5.0	95.0	13.3	86.7	47.5	52.5	40	60	0.8	99.2	2.5	97.5	1.7	98.3	0	100	74.2	25.8	9.2	90.8
4.Taken back used goods (legislation/ own initiative)	2.5	97.5	1.7	98.3	1.7	98.3	0	100	1.7	98.3	0	100	0.8	99.2	0	100	4.2	95.8	2.5	97.5	0	100	0.8	99.2	0.8	99.2	0	100	3.3	96.7	8.3	91.7

5.Recalled goods	1.7	98.3	0	100	0	100	0	100	0	100	0	100	0	100	0	100	0.8	100	0	100	0	100	0	100	0.8	99.2	0.8	99.2	0.8	99.2	9.2	90.8
6.Damaged/ broken/faulty goods	57.5	42.5	26.7	73.3	20	80	19.2	80.8	10	90	1.7	98.3	2.5	97.5	8.3	91.7	32.5	67.5	30	70	0	100	1.7	98.3	0.8	99.2	0	100	65.8	34.2	10	90
Average mean (all)	34.45	65.55	34.73	65.26	20.15	79.85	20.7	79.3	12.08	87.91	1.25	98.75	3.18	96.78	10.68	89.32	28.18	71.95	23.88	76.12	0.4	99.6	3.05	96.95	3.18	96.82	0.55	99.45	46.25	53.62	10.57	89.43
Average mean (excluding goods category 4 & 5)	50.63	49.38	51.68	48.33	29.8	70.2	31.05	68.95	17.7	82.3	1.88	98.13	4.58	95.43	16.03	83.98	41.03	58.98	35.2	64.8	.24	99.4	4.38	95.63	4.38	95.63	2.5	99.38	68.35	31.65	11.48	88.55

Appendix E: Interview Guide for the Final Phase Research

Interview

Goods Accumulation

- Do goods accumulate in the reverse pipe of your business?
- What may be the reasons for the goods to accumulate? And what may be the reasons, if they do not accumulate? E.g. unsold and excess goods, legislative take-back, own initiative take-back, other.

Goods volume/quantity

- What quantity of goods accumulate in each category?
- If you have said either low, high or none accumulation, please explain the reasons.

Process of Reverse Logistics

What process you go through to extract value, manage or dispose of these goods? E.g. transporting/moving, warehousing/storage, sort/select/inspect, other.

Disposal Options

- What do you do, or how do you extract value manage or dispose of the goods? E.g. send to supplier, resale, sell via outlet, other. Provide reasons for choosing the options you have chosen. Provide reasons for not choosing a reason.

Time required

- How long will it take to extract value, manage or dispose of the goods in various categories?
- Why do you think it takes the length of time you have mentioned?
- Do you do anything to decrease the time span? If yes what you do?

Relationships and Collaboration

- Do you relate or collaborate with anyone to extract value, manage or dispose of the goods? If yes, who do you relate with and why do you relate with the party you mentioned? How do you do this? If not, why not? E.g. supply chain relationship, other.

Costs

- Can you tell me about the costs of reverse logistics?
- Can you tell me about the costs of extracting value, managing or disposing of these goods?
- Is there anything you do to reduce/avoid the costs? If yes what do you do?

RL Motivation

- What drives you to engage in RL? Or why do you manage RL? Or what do you gain from RL?

Anything else

- Is there anything I haven't asked, or that you want to tell me, about reverse logistics?

Appendix F: Other Documents Carried for the Final Phase Research

Document 1- List of goods categories that may accumulate in the reverse channel of a business-to be shown to the respondents, if required

- Unsold & Excess Goods
- Customer return goods for exchange
- Customer return goods for repair
- Damaged/Broken/ Faulty/Expired goods
- Legislative take-back goods (ELV; WEEE; Battery Law)
- Own initiative take-back goods
- Recalled Goods

Document 2-Possible Reverse Logistics Process-to be shown to the respondents, if required

- Knowledge – what/how/why?
- Transportation – moving/carrying goods from one place to the other
- Warehousing/Storage
- Sorting/selecting/inspecting/testing
- Choosing the disposal options
    - Return to vendor/supplier
    - Resale as new
    - Repackage and sale as new
    - Reduce and sell
    - Direct re-use
    - Sell via outlet
    - Sell to broker
    - Sell to other recyclers and dismantlers
    - Donate to charity
    - Repair
    - Refurbish
    - Remanufacture
    - Recycle
    - Cannibalise
    - Incinerate
    - Landfill
    - Do nothing

Document 3-Things to carry along or remember before conducting the Case Study for the Final Phase Research

- Researcher identity card-ID card
- Information guide on the research, including the aims and objectives of the research; the research question; importance of the research to the participant; importance to the society and importance to the policy maker
- Two copies of the Informed Consent form to be signed by the respondent and the researcher/interviewer
- Topic Guide for the interview
- Electronic recorder to record the interview
- Laptop or diary to keep the case study report/journal to write what has been interviewed/observed
- Camera to take pictures, whenever appropriate, and whenever required
- Approved ethical form

Case for Firm A

Goods Accumulation for Firm A

Firm A was a newsagent and had been running this business for the last 25 years. Firm A had knowledge of the goods that had accumulated in various categories in the reverse channel. They revealed that they had goods accumulation in the three main categories: 'unsold and excess' category, 'customer returns' category, and in the category of 'damaged/broken/faulty/expired'. They understood the reason for the goods accumulation in these categories, as goods accumulated in the 'unsold and excess' category because of the perishable and short date nature of the goods. The business had a simple returns policy where the customers could come and return goods within few days of purchase, if anything had gone wrong. Their customers came back to exchange goods and not to get repaired, as most of the goods they sold were short date perishable food items. The customers came to exchange goods because they became damaged or the customer had purchased the wrong item. Goods were exchanged to keep the customers happy, which was related to indirect economic gain. The returns policy the business provided was not liberal; rather, it was quite a tight policy, as they did not take anything and everything back from the customers, but inspected and asked questions before making decisions. They revealed that the goods in the 'damaged/broken/ faulty/expired' category accumulated because of the nature of the goods, as they are short date and perishable items. In other cases, the goods became damaged and faulty because of mishandling by customers and staff members. Goods were also found in this condition due to the fault of the supplier.

The business did not have goods accumulation in the 'own initiative take-back', 'legislative take-back' or the 'recalled goods' categories, as they believed that they were only a small business and the accumulation in these categories was for larger businesses. They had no knowledge of why the goods should accumulate in these categories. As they sold short date perishable goods, they believed that there was no need to recall these kinds of items.

Volume of Goods for Firm A

The firm had vague and speculated knowledge on the volume of the goods that accumulated in the various categories. They felt that keeping a unit record of these goods was a waste of time. They did not keep a record of these goods because they said it was related to day-to-day activities and was not a long-term activity. However, they kept a record of one product, and the reason behind this was economic gain – they

kept records of the pasties that remained unsold and that had gone stale, so that at the end of the year they would receive a tax rebate.

Reverse Logistics Process: Transportation; Warehousing, Sorting/Selecting/Inspecting for Firm A

Firm A was also involved in transportation, storing/warehousing and sorting/selecting/inspecting of goods.

Suppliers carried the goods to be taken back for compensation. In some cases, the owner carried these to the supplier while they were there to pick up deliveries. This indicates that there was no extra cost involved in transportation.

The damaged/faulty/expired goods and wrong deliveries had to be stored until they could be inspected, compensated and taken back by the suppliers. The magazine and newspaper supplier had set up an area outside the shop for storing their goods, however the shop used their existing space for storing other goods accumulated in various categories. This also indicates that there was no extra cost involved in the storage.

The goods were inspected on various occasions, such as before buying new goods, on the arrival of new deliveries, when customers brought goods back, and when checking for damaged and expired goods in the shop. In a few cases, the suppliers did this for them, as the short date perishable goods supplier, the greetings cards supplier, and the SIM card supplier sorted and selected the unsold, damage, faulty or outdated goods and replaced them with new/fresh ones. However, in most cases, the business had to do this themselves. Again, there was no indication of any extra cost involved.

Disposal Options for Firm A

The business used several disposal options. The preferred options were the ones that they knew about; that were readily available; that they thought would yield economic gain; and that had low or no investment. Their priority was to send the goods back to their suppliers and get the compensation for both damaged and faulty goods and also for the unsold and excess goods. They did this with the suppliers who provided this policy. After compensating for the damaged and faulty goods, some of the suppliers physically took the goods back and others did not, and in these cases, it was up to the business to dispose of them.

In other cases, the preferred options were either to reduce the price or move the products from one display area to another, to enhance selling. There were cases of minor repairing and repackaging. They also used the goods for their personal use, if they felt that the product still had some value. The nature of the goods, not having knowledge of disposal options, availability of other options, size of the business, and small volume were the key aspects that prohibited the business from using the other options. Putting in the bin was revealed as the last option, however, due to various reasons, they had to frequently use this as an option.

Time Required for Firm A

The business did not have clear knowledge on the time required to extract value, manage, or dispose of these goods. However, it was understood that the time taken could range between a few days to a few weeks, or in some cases, there was no time limit and could take any length of time.

Drivers and Barriers for Firm A

Economic gain was the main driver for this firm to become engaged in the process of reverse logistics. However, not giving importance, nature of the goods, not having enough knowledge, size of the business, and no co-operation from suppliers were some of the key barriers to reverse logistics in this business, which may have restricted them from using their capability in reversing the logistics.

Case for Firm B

Goods Accumulation for Firm B

Firm B is a business that buys and sells both new and used home electronic appliances. Firm B had the knowledge of the goods that had accumulated in various categories in the reverse channel. They revealed that they had goods accumulation in the four main categories: 'unsold and excess', 'customer return', 'damaged/broken/faulty/expired', and 'own initiative take-back' categories.

The firm understood the reasons for the goods accumulation in various categories. Goods in the 'unsold and excess' category accumulated because the goods were seasonal, technological, and due to the slow-moving nature of the goods. They took back goods for repair purposes because they provided three months' warranty to the customers, because goods get damaged/broken, and because they believed this keeps customers happy and yield economic gain. The firm exchanged or repaired goods brought back by the customers because of the warranty, wrong purchase, or due to goods becoming damaged/broken. The returns policy they had, however, was not liberal, and was relatively tight as they did not take anything and everything back from the customers, but inspected and asked questions before making decisions. Goods accumulated in the 'damaged/broken/faulty' category due to the electronic and used nature of the goods. The goods also became faulty or damaged due to the fault of the supplier or mishandling by staff members. One of the core activities related to their business was to repair and refurbish used and second-hand goods, and to sell this at a profit. In due course, they used their own initiative to take back used and discarded goods.

Firm B did not have goods accumulation in the 'legislative take-back' or the 'recalled goods' categories, as they believed that they were only a small business and the accumulation in these categories was for larger businesses. They also had no knowledge about why goods should accumulate in these categories.

Volume of Goods for Firm B

The firm had vague and speculated knowledge on the volume of the goods that accumulated in the various categories. As far as keeping a unit record of the goods, they believed this was time consuming, as well as having a general idea in their minds about the volume of accumulated goods. However, it was found that they kept temporary records of the goods that had come back from customers for repair or exchange purposes – this was important, because it related to customer care which, again, would lead to indirect economic gain.

Reverse Logistics Process: Transportation, Warehousing, Sorting/Selecting/Inspecting for Firm B

Firm B was also involved in transportation, storing/warehousing and sorting/selecting/inspecting of these goods. New goods suppliers used their transport system to carry back the damaged/broken/faulty goods. However, Firm B had to frequently use their own van, time, and effort to either collect used and second-hand goods, or to deliver the goods for exchange or after repair, as this was related to their core business activity that was to be taken back from end users for repair, refurbish, or exchange. This indicates that there was extra cost involved in transportation, as they own a special van for this purpose.

Damaged or faulty goods had to be stored until inspected, compensated and taken back by the suppliers. Goods brought back from customers for repair/exchange, or goods brought back due to own initiative also needed storage. The business stored a few goods in the various corners of the shop in the downstairs area, however, they also had huge storage area in the upstairs part of the shop premises. This indicates that there was extra cost involved in the storage.

The goods were inspected on various occasions such as before buying new goods, on the arrival of new deliveries, when customers returned items, and also in the shop when checking for damages. Because of the electronic nature of the goods, the business hired a paid specialist engineer to do the testing and inspecting for them. This indicates that there was extra cost involved in the testing/inspection process.

Disposal Options for Firm B

The business used several disposal options. The preferred options were the ones of which they had knowledge, that were readily available, that they thought would yield economic gain, and that had low or no investment. Their priority was to send the goods back to their suppliers and get the compensation for damaged and faulty goods. New goods suppliers provided this policy, but the used and second-hand suppliers did not. After compensating for the damaged and faulty goods, some of the suppliers physically

took the goods back, and others did not, and in these cases the business was responsible for disposal. Selling the goods after repairing and refurbishing was frequently done as this was related to the core activity of their business. The firm also frequently used other online channels like eBay and Gumtree to sell their unsold and excess goods. They directly used the spare parts from used and discarded goods for repairing and refurbishing purposes, and gave away their unwanted goods to the scrap people. In other cases, the preferred options were either to reduce the price of the product or move the products from one display area to another, to enhance selling. The nature of the goods; not having knowledge of the disposal options; availability of other options; size of the business; not having faith in the disposal option; and no economic savings in using the options were the key aspects that prohibited them from using other options. Putting in the bin was revealed as the last option, however, due to various reasons, they had to frequently use this as an option. The small bits of plastic, rubber and smashed glass pieces from the appliances were the products that were thrown in the bin, as this was not taken away by the scrap people, as they only collect metals. The other reasons for putting these goods in the bin was because the bits were not taken by suppliers, they had no economic value, or were small in volume.

Time Required for Firm B

The business did not have clear knowledge regarding the time required to extract value, manage, or dispose of these goods. However, it was understood that the time taken ranged from a few days to a few years. The longest time was required for the unsold and excess goods, as this could take more than a year. However, customer returns were processed quickly, as this was related to customer satisfaction, leading to indirect economic gain.

Drivers and Barriers for Firm B

Economic gain was the main driver for this firm to get engaged in the process of reverse logistics. However, not being important; nature of the goods; not having enough knowledge; size of the business; and no co-operation from suppliers were some of the key barriers to reverse logistics in Firm B.

Case for Firm C

Goods Accumulation for Firm C

Firms C runs as a Pound Shop and mini market. Firm C had the knowledge of the goods that accumulated in various categories in the reverse channel. They had goods accumulation in the three main categories: ‘unsold and excess’ category; ‘customer returns’ category; and in the category of ‘damaged/broken/ faulty/expired’. The firm had an understanding of the reasons for goods accumulation – unsold and excess

goods accumulated because the supplier supplied goods in large standard size boxes, and the demand for the goods could not be predicted. They had a simple returns policy where customers could return goods within few days of purchase, if anything was wrong with the goods. However, Firm C revealed that customers preferred to exchange goods rather than have them repaired.

Firm C revealed that customers exchanged goods because the goods had been damaged or had expired. Goods are exchanged, because this keeps customers happy and is related to indirect economic gain. The returns policy the business had was not liberal, as they did not take anything and everything back from customers, but instead inspected and asked questions before making decisions. The goods in the 'damaged/broken/faulty/expired' category accumulated because of the nature of the goods, as they were short date and perishable items. In other cases, goods became damaged and faulty because of mishandling by customers and staff members, as well as through the fault of the supplier.

Firm C did not have goods accumulation in the 'own initiative take-back', 'legislative take-back' and the 'recalled goods' categories because they did not have knowledge about why goods should accumulate in these categories, plus there was no economic gain in collecting goods in these categories. They also said that they did not have to recall goods because their suppliers never asked them to.

Volume of Goods for Firm C

They had vague and speculated knowledge on the volume of goods that accumulated in the various categories. Not keeping a unit record of these goods was the reason the firm had no precise knowledge of the volume of these goods, as keeping records was not an important task. However, they kept temporary records of some of the goods for economic gain purposes, as they received compensation from their suppliers for damaged/expired goods.

Reverse Logistics Process: Transportation, Warehousing, Sorting/Selecting/Inspecting for Firm C

Firm C was also involved in transportation, storing/warehousing and sorting/selecting/inspecting of goods. Suppliers carried the goods back for compensation if they were damaged/faulty/expired or unsold and excess. In some cases, the owner carried these to the supplier when they were visiting to pick up deliveries. This indicates that there was no extra cost involved in transportation. The damaged/faulty/expired goods and wrong deliveries had to be stored until they could be inspected, compensated and taken back by the suppliers. The storage area was also used to store the unsold and excess goods to sell next year. The goods were either stored in the various corners of the shop premises, or were stored at the rear in the storage area. Firm C had two different storage areas in the rear of the premises. The first was the whole ground floor in a separate rented building, and the other was a container at the rear of the shop. This indicates that there was extra cost involved in the storage of these items. The goods were inspected on various occasions such as before buying new goods; on the arrival of new deliveries; when customers brought back items; and when

checking for damaged and expired goods in the shop. In a few cases, suppliers did this for them, but in most cases the business had to do this themselves. Again, there was no indication of any extra cost involved.

Disposal Options for Firm C

The business used a few disposal options, with the preferred options being the ones of which they had knowledge, that were readily available, that they thought would yield economic gain, and that had low or no investment. If it is in the policy, their priority was to send the goods back to their suppliers and get compensation. Some of the suppliers, however, did not physically take the goods back, but asked the business to dispose of them instead. In other cases, the preferred options were either to reduce the price or move the products from one display area to another, to enhance selling. There were cases of minor repairing and repackaging. The firm also used the goods for their personal use, if they felt the products still had value. They also believed that government should provide them with help on the issues related to the disposal of these products.

The nature of the goods, not having knowledge of the disposal options, availability of other options, size of the business, small volume, and lack of time and resources were the key aspects that prohibited them from using the other options. Putting in the bin was revealed as the last option, however, due to various reasons, they had to frequently use this as a disposal option.

Time Required for Firm C

The business did not have precise knowledge regarding the time required to extract value, manage or dispose of these goods. However, it was understood that the time taken ranged between a few days to a few years – and in some cases, could take up to five years.

Drivers and Barriers for Firm C

Economic gain was the main driver for this firm to become engaged in the process of reverse logistics. However, not giving importance, nature of the goods, lack of knowledge, size of the business, and no co-operation from suppliers were some of the key barriers to reverse logistics in this business.

Case for Firm D

Goods Accumulation for Firm D

Firm D is a start-up business and runs as a ladies' fashion clothing business. Firm D had knowledge of the goods accumulated in various categories, as they had goods accumulation in the three main categories:

‘unsold/excess’ category; ‘customer return’ category and in the category of ‘damaged/broken/faulty/expired’. They understood the reason for the goods accumulation, as goods in the ‘unsold and excess’ category accumulated because of seasonal goods and changes in fashion and trends. They had a simple returns policy where customers could return goods within a few days of purchase if anything was wrong with the goods. However, the returns policy was not too liberal as they did not take anything and everything back from the customers, but instead inspected and asked questions before making decisions. Customers exchanged goods rather than having them repaired. Goods were typically exchanged because they either were damaged or customers had made a wrong purchase. Exchanging goods kept the customers happy, which was related to indirect economic gain. Goods in the ‘damaged/broken/faulty/expired’ category accumulated because of mishandling by customers and staff members. The goods were also found in this condition due to the fault of the supplier.

They did not have goods accumulation in the ‘own initiative take-back’, ‘legislative take-back’ and the ‘recalled goods’ category, because they did not see any economic gain in doing so. Not having knowledge of this option, along with the size of their business were the reasons for not having goods in the ‘legislative take-back’ category. They believed, being a small business, they would have no need to recall goods.

Volume of Goods for Firm D

They had vague and speculated knowledge on the volume of the goods that accumulated in the various categories. Not keeping a unit record of the goods was the reason behind this lack of knowledge. Record was not kept because it was time consuming, and that they had this in their mind. However, Firm D kept temporary records of some of the goods for economic gain purposes in order to obtain compensation from their suppliers for damaged/expired goods.

Reverse Logistics Process: Transportation, Warehousing, Sorting/Selecting/Inspecting for Firm D

Firm D was involved in transporting, storing/warehousing and sorting/selecting/inspecting of goods.

Goods which were to be taken back to the suppliers for compensation were carried to the suppliers by Firm D, while they were there to pick up deliveries. This indicates that there was no extra cost involved in transportation.

The damaged/faulty goods had to be stored until they could be taken back to the suppliers for inspection and compensation. The business also stored the unsold and excess goods to sell the following season. The shop did not have extra storage space, and therefore they used boxes to store their unwanted goods for that period. This indicates that there was no extra cost involved in the storage, but there was the cost of buying the boxes.

The goods were inspected on various occasions, such as before buying new goods, on the arrival of new deliveries, when customers brought items back, and when checking for damaged and expired goods in the shop. The goods also had to be inspected to identify the unsold and excess items so they could be put aside. The business did this themselves. Again, there was no indication of any extra cost involved in sorting/selecting/inspecting.

Disposal Options for Firm D

Firm D used a number of disposal options, with the preferred options being the ones of which they had knowledge, that were readily available, that they thought would yield economic gain, and that had low or no investment. If it is in the policy, their priority was to send the goods back to their suppliers for compensation. In other cases, the preferred options were either to reduce the price, or move the products from one display area to another to enhance selling. There were cases of minor repairing and repackaging. Firm D gave away unsold and excess goods to their friends and family and mentioned that it is about being social. They also sold some customer-returned goods as new, and did some minor repairing and refurbishing. The firm used other channels like Facebook for selling their unsold and excess goods, and are considering setting up a website. They also revealed they used the technique of cannibalisation. The nature of the goods, lack of knowledge of disposal options, availability of other options, size of the business, small volume, and the business being newly established were the key aspects that prohibited them from using other options. Firm D never had to put goods in the bin as this situation never arose. This could be because they had only been running for a few months, and the situation had not arisen yet.

Time Required for Firm D

Firm D did not know the precise time required to extract value, manage, or dispose of these goods. However, it was understood that the time taken can be from a few months up to a year.

Drivers and Barriers for Firm D

Economic gain was the main driver for this firm to become engaged in the process of reverse logistics. However, not giving importance, not having enough knowledge, and size of the business were some of the key barriers to reverse logistics in this business.

Case for Firm E

Goods Accumulation for Firm E

Firm E runs as a ladies' fashion clothing business. Firm E had knowledge of the goods that accumulated in various categories. They had goods accumulation in three main categories: 'unsold and excess' category;

‘customer returns’ category and in the category of ‘damaged/broken/faulty/expired’. They understood the reason behind the goods accumulation, as goods in the ‘unsold and excess’ category accumulated because of seasonal goods, changes in fashion and trend, and due to differences in customer preferences. Stocking goods that do not sell was another reason, they believed, for goods remaining unsold and excess. Firm E had a simple returns policy where the customers could return goods within a few days of purchase, if anything was wrong with them. However, customers preferred to exchange rather than repair. Goods did not accumulate in the ‘repair’ category, as it is costly, repairing is no longer in trend, and the firm has no resources to repair. Customers also exchanged goods because they had purchased the wrong size or style. Goods were exchanged because this kept the customers happy, which was related to indirect economic gain. The returns policy was not liberal, but was quite tight, as they did not take anything and everything back from the customers, but instead inspected and asked questions before making decisions. Goods in the ‘damaged/broken/faulty/expired’ category accumulated because of the nature of the goods, as they were all hand made. Goods also became damaged due to mishandling by customers, staff members, and suppliers.

Firm E did not have goods accumulation in the ‘own initiative take-back’, ‘legislative take-back’ and the ‘recalled goods’ categories. The reason mentioned for goods not accumulating in the ‘own initiative’ category was because they did not have any knowledge about this. No goods accumulated in the ‘legislative take-back’ category because their goods do not fall under this category. Again, they revealed that they do not have to recall goods because their supplier has never asked them to.

Volume of Goods for Firm E

Firm E had vague and speculated knowledge on the volume of the goods that accumulated in the various categories. Not keeping a unit record of the goods accumulated in these categories was the reason behind the lack of knowledge of the volume of these goods. Records were not kept because the firm thought it was time consuming and was related to a day-to-day activity. The firm also revealed that they do not need to keep records of these goods because they have a mental note of everything, and they do not need to report to anyone. This was the only company found to keep no records at all, even temporary ones.

Reverse Logistics Process: Transportation, Warehousing, Sorting/Selecting/Inspecting for Firm E

Firm E was involved in transporting, storing/warehousing and sorting/selecting/inspecting these goods. Suppliers assisted in carrying the goods that were to be taken back for compensation. This indicates that there was no extra cost involved in transportation.

The damaged/faulty goods had to be stored until they could be taken back to the suppliers for inspection and compensation. Unsold and excess goods were stored to sell the following season/year, or to give to charity. Bin bags and the loft of the shop were used to store their unwanted goods as they did not have

proper storage. Goods were stored in the loft of the shop even though the landlord did not like this. This indicates that there was no extra cost involved in the storage.

The goods were inspected on various occasions, including before buying new goods, on arrival of new deliveries, when customers returned items, and when checking for damaged and expired goods in the shop. Goods also had to be inspected to identify any unsold and excess items to be put aside. The business did this themselves. Again, there was no indication of any extra cost involved in sorting/selecting/inspecting the goods.

Disposal Options for Firm E

The business used a few disposal options. The preferred options were the ones of which they had knowledge, that were readily available, that they thought would yield economic gain and that had low or no investment. If it is in the policy, their priority was to send the goods back to their suppliers for compensation. In other cases, the preferred options were either to reduce the price or move the products from one display area to another to enhance selling. The firm also sold customer-returned goods as new, and did some minor repairing and refurbishing. They also revealed they used the technique of cannibalisation. The nature of the goods, lack of knowledge about the disposal options, availability of other options, size of the business, small volume, being unmotivated, not being in trend, and not having time were the key aspects that prohibited Firm E from using other options. The firm tried not to put goods in the bin, but damaged and faulty goods from a discontinued supplier, who would not take the goods back, had to be put in the bin.

Time Required for Firm E

The time required to extract value, manage, or dispose of these goods was not precisely known. However, it was understood that the time taken can range from at least a month up to a year.

Drivers and Barriers for Firm E

Economic gain was the main driver for this firm to become engaged in the process of reverse logistics. However, not giving importance, lack of knowledge, size of the business, no co-operation from the supplier, and not being in trend were some of the key barriers to reverse logistics in this business.

Case for Firm F

Goods Accumulation for Firm F

Firm F is an electrical and electronic item business. Firm F had knowledge of the goods that accumulated in various categories in the reverse channel. They had goods accumulation in three main categories: ‘unsold

and excess', 'customer return' and in the 'damaged/broken/faulty/expired' category. They also showed that they understand the reasons for goods accumulation in these categories. The goods in the 'unsold and excess' category accumulated because of the large standard size boxes they buy, and because of changes in technology, as they deal with electric and electronic goods. Firm F had a simple returns policy where customers could return goods within few days of purchase if anything was wrong. However, customers came back to exchange the goods rather than having them repaired. Repairing themselves, they believed, would lead to health hazards, as they were electrical and electronic goods.

Customers also exchanged goods due to wrong purchase. Goods were exchanged because this keeps the customer happy, which was related to indirect economic gain. It was also found that their returns policy was relatively tight as they did not take anything and everything back from customers, but instead inspected and asked questions before making decisions. The goods in the 'damaged/broken/faulty/expired' category accumulated because of the nature of the goods, as they were all related to technological goods. Goods also became damaged because of mishandling by customers, staff members, and suppliers.

Firm F did not have goods accumulation in the 'own initiative take-back', 'legislative take-back' or the 'recalled goods' categories. Goods did not accumulate in the 'own initiative' and 'legislative' take-back categories because they did not have any knowledge about these options. They had been asked to recall goods in the past by their suppliers, but they said very few goods could be recalled as they did not know exactly how to do this.

Volume of Goods for Firm F

Firm F had vague and speculated knowledge on the volume of the goods that accumulated in the various categories. Not keeping a unit record of the goods was the reason behind the lack of precise knowledge regarding the volume of accumulated goods. Records were not kept because they believed it was time consuming. However, the firm did keep a temporary record of the goods that had been damaged or found to be faulty, in order to obtain compensation from the suppliers.

Reverse Logistics Process: Transportation, Warehousing, Sorting/Selecting/Inspecting for Firm F

Firm F understood that transporting, storing/warehousing and sorting/selecting/inspecting were all involved in this activity.

Suppliers assisted in carrying goods which were to be taken back to the suppliers for compensation. In some cases, Firm F carried these goods to their local suppliers while they were there to pick up their deliveries. This indicates that there was no extra cost involved in transportation.

The damaged/faulty goods had to be stored until they could be taken back to the suppliers for inspection and compensation. The business also stored the unsold and excess goods to sell the following season/year.

They had an extra storage space upstairs in the shop. Much of the upstairs storage space was covered by these goods as these has been accumulating for years. This indicates that there was extra cost involved in the storage.

The goods were inspected on various occasions, such as before buying new goods, on the arrival of new deliveries, when customer brought back items, and when checking for damaged and expired goods in the shop. The goods were also inspected to check for unsold and excess items, so that they could be put aside. The business did this themselves. Again, there was no indication of any extra cost involved in sorting/selecting/inspecting.

Disposal Options for Firm F

Firm F used several disposal options. The preferred options were the ones of which they had knowledge, that were readily available, that they thought would yield economic gain, and that had low or no investment. If it is in the policy, their priority was to send the goods back to their suppliers and obtain compensation. However, after compensating for the damaged and faulty goods, some of the suppliers physically took the goods back and others did not, but asked the business to dispose the goods. In other cases, the preferred options were to reduce the price of the goods to enhance selling. They sold customer-returned goods as new, and used the unsold and excess goods for either personal use, or for business use. The firm revealed that they used left-over Christmas lights to decorate their shop for Christmas, as they believed the product still had value even though the customers did not buy them. The nature of the goods (they can be hazardous, goods were not related to fashion), lack of knowledge regarding the disposal options, availability of other options, size of the business, and small volume were the key aspects that prohibited them from using other options. Firm F tried not to put goods in the bin, but damaged and faulty goods from a discontinued supplier, who would not take the goods back, had to be put in the bin.

Time Required for Firm F

The time required to extract value, manage, or dispose of these goods was not precisely known. However, it was understood that the time taken ranged between at least a month up to 10-12 years.

Drivers and Barriers for Firm F

Economic gain was the main driver for this firm to become engaged in the process of reverse logistics. However, not giving importance, not having enough knowledge, size of the business, nature of the goods, and no co-operation from suppliers were some of the key barriers to reverse logistics in this business.

Appendix H: Analysed Themes, Sub-Themes, and Codes for the Final Phase Research

Themes	Sub-Themes	Codes	Codes Meaning	Firms with codes
Main Theme 1- Process/Steps in Reverse Logistics				
	Goods Accumulation	Unsold and Excess	Firm have the goods in the unsold and excess category	A, B, C, D, E, F
		Customer return for Repair	Firms get the goods in the repair category	B
		Customer return for Exchange	Firms get goods in the exchange category	A, B, C, D, E, F
		Damaged/Broken/Expired/Faulty	Firms get goods in the damaged/broken/expired/faulty category	A, B, C, D, E, F
		Own initiative take-back	Firms take back goods using their own initiative for economic reasons	B
		Recall	Firm have recalled goods in the past	F
	Volume of Goods	Record Keeping	Firms keep record of the goods accumulated in the reverse channel	A
		Record not keeping	Firms do not keep record of the goods accumulated in the reverse channel	B, C, D, E, F
		Temporary record keeping (ET)	Firms keep temporary record of the goods accumulated in the reverse channel	A, B, C, D, F
		Vague Knowledge	Firms do not have precise knowledge but rather have vague knowledge of the volume of goods accumulation	A, B, C, D, E, F
		Speculated (ET)	Firms knowledge on the volume of goods accumulation is based on speculation	A, B, C, D, E, F
		Economics of Scale	Small volume does not allow to have economics of scale	A, B, C, D, E, F
	Reverse Logistics Process	Transportation	Firms are involved in transportation or transport system to move the goods from one place to the other	A, B, C, D, E, F
		Warehousing/storage	Firms are involved in storing the goods accumulated in reverse channel	A, B, C, D, E, F
		Sorting /selecting/ inspecting/testing	Firms are involved in /sorting/selecting/inspecting/testing the accumulated	A, B, C, D, E, F
	Disposal Options	Send unsold and excess to suppliers	Firms have the privilege to send and get the compensation for the unsold and excess goods from the suppliers	A, C
		Send D/B/E/F to suppliers	Firms have the privilege to send and get the compensation for the damaged/broken/faulty/expired goods from the suppliers	A, B, C, D, E, F
		Throw in Bin	Firms throw the unwanted goods in the bin	A, B, C, E, F
		Repackage and resell	Firms repackage the goods and sell	A, C
		Repair and refurbish	Firms repair and refurbish the damaged and faulty goods	B
		Minor repair and refurbish	Firms do minor repairing and refurbishing	A, B, C, D, E
		Give away to recyclers and dismantlers	Firms give away their discarded goods to the scrap people	B
		Sell as new	Firms sell the goods returned by customers as new	A, B, C, D, E, F
		Direct reuse-personal use	Firms directly reuse the unwanted and discarded goods for their personal use	A, C, F
		Business use	Firms directly reuse the unwanted and discarded goods for business use	B, C, F
		Social use	Firms directly reuse the unwanted and discarded goods for social use	D
		Reduce the price and sell	Firms reduce the price of the accumulated goods and sell	A, B, C, D, E, F
		Sell via outlet –Facebook	Firms use the social media as outlet as Face Book to sell their accumulations	D
		Sell via outlet eBay, Gumtree	Firms use the online channels like eBay and Gumtree to sell their accumulations	B
		Setting up a website	Firms are considering setting up a website to sell the accumulations	D
		Give away to Charity	Firms give away their accumulations to the charity	E

		Cannibalise	Firms use the disposal option of cannibalisation	D
		Move the display area and sell	Firm move the display area of the goods to receive the attention of the customers for fast selling	A, B, C, D, E
		Believe that government should help	Firms believe that government should intervene in assisting in the disposal of these goods	C
Main Theme 2-Required Time				
	Time required	Vague knowledge	Firms do not have precise but the vague knowledge of the time required to extract value, manage or dispose of these goods	A, B, C, D, E, F
		Speculation	Firms speculate the time required to extract value manage or dispose of these goods	A, B, C, D, E, F
		Few days	Firms take few days to manage extract value or dispose of some of these goods	A, B, C, D, E, F
		Few weeks	Firms take few weeks to manage, extract value or dispose of some of these goods	A, B, C, D, E, F
		Up to a year	Firms take up to a year to manage, extract value or dispose of these goods	B, C, D, E, F
		More than a year	Firms take more than a year to manage extract value or dispose of these goods	A, B, C, D, E, F
		Take years	Firms take years to manage, extract value or dispose of these goods	C, F
		Longest time-unsold excess	Unsold and excess goods take longest time	A, B, C, D, E, F
		Quicker-customer return	Customer return goods for repair/exchange is processed quickly	A, B, C, D, E, F
		Quicker-customer satisfaction	Customer return goods are processed quickly because this brings customer satisfaction	A, B, C, D, E, F
		Quicker- expired/short date	Goods having that have short date and can expired are processed quickly	A, C
		Supplier wait/meet time	How quickly the goods are processed depends upon how long the firms have to wait for visiting/seeing their supplier	A, B, C, D, E, F
		No record keeping	Records are not kept for the times taken to manage, extract value or dispose of the goods	A, B, C, D, E, F
		Obsolesce/damage	Longer the goods stay it is more likely that they get obsolete and damaged	A, B, C, D, E, F
Main Theme 3 - Deployed resources				
Sub Theme-3.1-Tangible resources	Transport System	Private transport system used	Private transport system used in moving the goods from shop to the suppliers	A, B, C, D, E, F
		Business transport system used	Business transport system used in moving the D/B/F goods from the shop to suppliers	B
			Business transport system used in moving the own initiative take-back goods from suppliers to shop	B
			Business transport system used in moving D/B/F goods from customers to shop	B
			Business transport system used in moving repaired/exchanged goods to the customers	B
		Suppliers transport used	Suppliers transport system used in moving goods from shop to the suppliers	A, B, C, F
	Storage space	Store unsold and excess goods	Store is used to store unsold and excess goods	A, B, C, D, E, F
		Store customer return goods	Store is used to store customer return goods	A, B, C, D, E, F
		Store D/B/F/E goods	Store is used to store damaged/broken/faulty/expired goods	A, B, C, D, E, F
		Store own initiative goods	Store is used to store the used and second-hand goods taken back using their own initiative	B
		Store spare parts for future use	Store is used to store the spare parts for future repairing and refurbishing	B
		Proper storage space	Firms have proper storage space that is meant only for storing goods	B, C, F
		Store in loft of the shop	Firms use loft of the shop as resource to store their goods	E
		Store in bin bags	Firms use bin bags as resource to store their goods	C, E
		Store in plastic boxes	Firms store their goods in the plastic bags	D
		Store in the corner of the shop	Firms use the corner of the shop as resource to store their goods	A, B, C, D, E, F
		Use suppliers' setup storage	Suppliers have set up a storage area as resource for firms	A
	Space for bin	Space for bin	Firms use space as resources for placing their bin	A, B, C, D, E, F
	Physical attributes	Phone	Firm use phone as resource to send and receive information	A, B, C, E, F
		Computer	Firm use computer as resource to send information	B, D, F

		Picture taking device	Firm use picture taking device as resource to take picture to post in the social media and online	B, D
		Sellotape, staples	Firms use Sellotape and staples as resources for minor repairing and refurbishing purpose	A, C
		Pen and paper	Firms use pen and paper as resources for writing the price reduction	A, B, C, D, E, F
		Tools/equipment or spare parts	Firms use tools/equipment's and spare parts as resources for repairing and refurbishing	B
		Bin and bin bags	Firm use bin and bin bags as resources to throw away or to store unwanted goods	A, B, C, D, E, F
	Money	Money website	Firms use money as resources used to set up the website	D
		Money online channels	Firm use money as resources to get the service of the online channels like eBay and Gumtree	B
	Added Resources	Resources adds	Firms believe they will have added resources once the business grows	D
Sub Theme 3.2- Intangible resources	Tacit knowledge gained from past experiences	TK Goods accumulation	Firms use Tacit Knowledge gained from past experiences as resources, to understand the goods accumulation in various categories with its reasons	A, B, C, D, E, F
		TK reasons record keeping	Firm use Tacit Knowledge gained from past experiences, as resources, to understand the reasons for keeping the record of the goods accumulated in the reverse channel	A
		TK reasons Temporary Records	Firms Tacit Knowledge gained from past experiences, as resources, to understand the reasons for keeping temporary records of the goods accumulated in the reverse channel	A, B, C, D, F
		TK SP Volume of Goods	Firms use Tacit knowledge gained from past experiences, as resources, to speculate the volume of goods accumulation	A, B, C, D, E, F
		TK PM	Firms used Tacit knowledge gained from past experiences, as resources to understand how and why to use the precautionary measures	A, B, C, D, E, F
		TK Transportation	Firms use Tacit knowledge gained from past experiences, as resources, to know-how in transporting the goods	A, B, C, D, E, F
		TK Warehousing/storage	Firms use Tacit knowledge gained from past experiences, as resources, for know-how in warehousing and storing the goods	A, B, C, D, E, F
		TK sorting/ selecting/ inspecting/testing	Firms use Tacit knowledge gained from past experiences, for know-how in sorting/ selecting/ inspecting/testing	A, B, C, D, E, F
		TK Disposal Options	Firms use Tacit Knowledge gained from past experiences in identifying, understanding and using/choosing the disposal option	A, B, C, D, E, F
		TK Supply Chain Relationship	Firms use Tacit knowledge gained from past experiences, as resources, to understand how and why to use the supply chain relationship	A, B, C, D, E, F
		TK Time	Firms use Tacit Knowledge gained from past experiences, as resources, to understand how and why to speculate the time required	A, B, C, D, E, F
		Curiosity/seeking knowledge (ET)	Firms have shown that they are curious for knowledge	A, C, E
		Knowledge for Knowledge (ET)	Firms would like to know where, and how to find knowledge	A, C,
	Time	T Transportation	Time is used as resources in transporting and moving goods from one place to the other	A, B, C, D, E, F
		T Warehousing/storage	Time is used as resources used in warehousing and storing the goods	A, B, C, D, E, F
		T sorting/selecting/inspecting/testing	Time used as resources for sorting selecting and inspecting	A, B, C, D, E, F
		T Disposal Options	Time used as resources for identifying and using the disposal options	A, B, C, D, E, F
	Effort	E Effort transportation	Effort used as resources in transporting and moving /goods from one place to the other	A, B, C, D, E, F
		E Warehousing/storage	Effort used as resources in warehousing and storing the goods	A, B, C, D, E, F
		E sorting/selecting/inspecting	Effort used as resources in sorting selecting inspecting	A, B, C, D, E, F
		Effort Disposal	Effort used as resources in disposing of the goods	A, B, C, D, E, F
		Effort Precautionary Measures	Effort used as resources in identifying and using the precautionary measures	A, B, C, D, E, F
		SR Close Proximity	Suppliers are closely situated giving the firm close interaction	A, B, C, F

	Supply chain relationship	Far Proximity	Suppliers are situated in the far proximity, but still giving the firm close interaction	B, C, D, E, F
		SR Numbers worked out	Firm did not have the suppliers number handy, and it had to be worked out - indicates transactional relationship	A, B, C, E, F
		SR Numbers not worked out	Firm had the suppliers number handy and it did not have to be worked out - new firm knowledge	D
		SR Dialogue Yes	Firms have dialogue with their supplier about the goods accumulated in reverse channel	A, C, E, F
		SR Dialogue No	Firms do not have dialogue with their suppliers about the goods accumulated in the reverse channel	B, D
		SR Dialogue Not Fruitful	Dialogue with the supplier is not fruitful	A, B
		SR Dialogue Not always fruitful	Dialogue with the suppler is not always fruitful	C, D, E, F
		SR Advice to	Firm provide advice to the suppliers	C, E, F
		SR Advice from	Firm receive advice from the suppliers	A, D, E, F
		SR superiority (ET)	Firms have upper hand because they are able to provide advice to the suppliers	C, E, F
		SR TC Sale or Return Yes	Suppliers sell goods on sale or return terms	A, C
		SR TC Sale or return No	Suppliers do not sale goods in sale or return terms	A, B, C, D, E, F
		SR Arm Length and Transactional	Relationship with some suppliers is arm length and transactional	A, B, C, D, F
		SR long-term but not collaborative	* Relationship with some of the suppliers is long term but not collaborative * Long term relationship does not always mean a collaborative relationship based on mutual benefit and understanding	A, B, C, D, E, F
		SR long term and not collaborative(ET)	* Relationship with some of the suppliers is long term and collaborative * Long term relationship where there is two-way dialogue and help & support exist	A, E, F
		SR Compassion no resentment	Firms have compassion but no resentment towards their suppliers	A, D, E, F
		SR some resentment	Firm have some resentment towards some of their suppliers	C
		SR compensate unsold and excess	Some suppliers compensate the unsold and excess goods	A, C, F
		SR Compensate Damaged/faulty/expired	Most of the firms' suppliers compensate damaged/faulty expired goods	A, B, C, D, E, F
		SR Purchase Advice	Suppliers provide purchase advice to the firms	A, C, D, E, F
		SR Storage Yes	Some suppliers assist in storage	A
		SR storage No	Not all suppliers assist in storage	A, B, C, D, E, F
		SR sorting/selecting/inspecting Yes	Some suppliers assist in sorting/selecting/inspecting	A, C
		SR sorting selectin g inspecting No	Not all suppliers assist in sorting selecting inspecting	A, B, C, D, E, F
		SR transporting Yes	Some suppliers assist in transporting	A, B, C, F
		SR Transporting No	Suppliers do not assist in transporting	A, B, C, D, E, F
		SR Yes Physically Back	Some suppliers take the reversed goods physically back	A, B, C, D, E, F
		SR Burden- No Physically Back-Burden(ET)	--Not all suppliers take the reversed goods physically back --Not taking the goods physically, suppliers are adding burden to the firms	A, B, C, F
		SR Standard Support (ET)	Most of the supplier's assistance is limited on standard terms and conditions provided by the suppliers	A, B, C, D, E, F
		SR Reliance (ET)	Firms rely on their supplier for the help and support related to reverse logistics	A, C, D, E, F
		SR Relief (ET)	Suppliers support is a relief for the firms	A, B, C, D, E, F
	External Entity (Outsourcing)	External Entity -specialist engineer	Service of an External entity as specialist engineer is used as resources	B
		External entity-paid bin man	Service of an External-entity as paid bin man used for disposing of the goods	A, B, C, F
		Other companies/wholesalers	Services offered by other companies/wholesalers are used to buy the needed tools and equipment	B
		Online channels	Services offered by online channels like eBay and Amazon are used to buy tools and spare parts	B
		Charitable organisation	Services offered by Charitable Organisations are used to give away the unwanted goods	E

		Scrap People	Services of scrap people are used to give away the unwanted goods	B
	Cleaners service	Cleaners service	Cleaners service is used to clean the used and second-hand goods	B
	Information	Information	Relevant information is used as resources to inform the supplier about the unsold, excess or damaged/faulty and expired goods	A, B, C, D, E, F
	Illegitimate behaviour	Informal behaviour(ET)	Illegitimate behaviour used to store the unwanted goods in the loft of the shop even if the suppliers did not allow	E
	informal behaviour	informal behaviour	informal behaviour used to give away the goods containing harmful chemicals to the illegitimate scrap people who would not handle this legally	B
	Unethical behaviour	Unethical behaviour	Unethical behaviour used to sell the customer return goods as new to the customers without letting them know	A, B, C, D, E, F
	Precautionary Measures	PM stock less UE	Stock less goods to avoid the unsold and excess goods	A, B, C, E
		PM stock long life UE	Stock long life goods to avoid or lessen unsold and excess goods	A, D, E
		PM Inspect new deliveries D/B/F/E/U	Inspecting, sorting selecting new deliveries to avoid or lessen damaged/ expired/ broken/ faulty and unwanted & wrong deliveries	A, B, C, D, E, F
		PM tighter returns policy CR	Tighter returns policy to avoid or lessen customer return goods	A, B, C, D, E, F
		PM Stock Quick Turnover UE	Stock Quick Turnover Goods to avoid unsold and excess goods	A, B, C, D, E
		PM Quick turnover/Sale UE	Quick turnover/Sale to avoid unsold and excess	A, B, C, D, E
		PM Customer Account D/B/F/	Keeping good account of customers so that they will not damage goods to avoid or lessen damaged/ expired/ broken/ faulty goods	A, E
		PM Dialogue S UE	Dialogue with the supplier (receiving the advice from the suppliers or giving advice to the suppliers) to avoid unsold and excess goods	A, C, D, E, F
		PM Instruction Customer D/E/B/F	Instruction to customers avoid or lessen damaged/ expired/ broken/ faulty goods	B, D, F
		PM Not forcing Customers CR	Not forcing customers to buy goods to avoid customer return goods	E
		PM Training Staff D/B/F/E	Training staff to avoid or lessen damaged/ expired/ broken/ faulty goods	B, C, F
		PM Life-cycle-assessment E/O	Life-cycle-assessment to avoid or lessen expired/ obsolete, and unsold and excess goods	A, B, D, E, F
Main Theme-4-Costs				
	Visible/known costs	VKC Transportation	Firm bears the cost of transportation and the cost is directly visible as the business transport system is used	B
		VKC Warehousing/storage	Firm bears the cost of storage and the cost is directly visible in the use of proper storage	B, C, D, F
		VKC sorting selecting inspecting	Firm bears the cost of sorting/selecting/inspecting/testing and this cost is directly visible in the use of specialist engineer	B
		VKC Disp. Opt.throw in bin	Firm bears the cost of throwing in the bin by arranging a bin man and the cost is directly visible	A, B, C, F
		VKC Disp.Opt repackage	Firms bears the cost of repackaging and the cost is directly visible in the materials used	A, C
		VKC Disp.Opt. repair and refurbish	Firms bears the cost of repair and refurbish and the cost is directly visible in the material used and un the use of external entity as the specialist engineer	B
		VKC Disp. Opt. minor repairing	Firms understand that they have to bear the cost of minor repairing and the cost is directly visible	A, B, C
		VKC Disp. Opt. Other Channel	Firms understand that they have to bear the cost of using the other channels like Face book, eBay and Gumtree	B, D
		VKC cleaning service	Firms understand that they have to bear the cost of using the cleaners	B
	Hidden Costs	HC no knowledge of goods accumulation	Firm will have to bear the cost of both economic and environmental repercussion for not have the knowledge of all the reasons for goods accumulation	A, B, C, D, E, F
		HC no knowledge of volume of goods	Firm will have to bear the cost of not knowing the capabilities and cost required by not precisely knowing the volume of goods	A, B, C, D, E, F

		HC no knowledge of disposal options	Firm will have to bear the cost of not having the knowledge of all the disposal options as this will not allow them to	A, B, C, D, E, F
		HC no knowledge of time required	Firm will have to bear the cost of not knowing the precise time required as this may result in more unsold, obsolete and damaged goods	A, B, C, D, E, F
		HC of time and effort used in Process of reverse logistics	Firm will have to bear the hidden cost of the processes of reverse logistics-transportation, storing and sorting/selecting/inspecting/testing	A, B, C, D, E, F
		HC cost of unsustainable disposal	Firm will have to bear the cost of both economic and environmental repercussion for throwing the goods in the bin	A, B, C, E, F
		HC cost of illegitimate storing	Firm storing the goods in the loft of the shop without the agreement of the landlord-fire risk	E
		HC cost of storing in shop corner	Firm storing the goods in the corner of the shop which could have been used for displaying the goods to be sold	A, B, C, D, E, F
		HC Bin space	Firms use the space for bin which could have been used for some other purpose	A, B, C, D, F
		HC No dialogue or long-term collaborative relationship with supplier	Firms not having dialogue or long term favourable relationship with their supplier are not benefitted	B, D
		HC excessive time taken	Goods remaining too log in the firm will lead to obsolesce, damaged and expiry	A, B, C, D, E, F
		HC tighter returns policy	Firms will have to pay the cost of losing and alienating customers by using the tighter return policy	A, B, C, D, E, F
		HC sell as new	Firms may have to bear the consequences of being unethical by selling the customer return goods as new	A, B, C, D, E, F
		HC no knowledge of other drivers	Firms are marring their market share and competitive power by not understanding the drivers of environment leading to competitive advantage	A, B, C, D, E, F
		HC Time effort Disp. Opt.	Firms are using time and effort in identifying and using the disposal options	A, B, C, D, E, F
	Cost avoidance/Reduction	CAR NV transportation costs	Firms take back goods to the suppliers in the next visit, and do not travel just for the sake of it	A, B, C, D, E, F
		CAR SC transportation costs	Firm used suppliers transport system and save cost in transportation	A, B, C, D, E, F
		CAR Suppliers storage	Firm used supplier set up storage and save cost in storage	A
		CAR loft storage	Firm used the loft of the shop rather than a proper storage and save cost	E
		CAR Give charity	Firms give away the accumulation to charity rather than storing it, and save cost of storage	E
		CAR sale as new	Firm avoid cost by selling returned goods as new	A, B, C, D, E, F
		CAR informal Scrap	Firm use the informal scrap people to give away their unwanted goods to avoid costs of doing it legally	B
		CAR Disp Opt LC, RA, LONI	Firms save cost by using the disposal option that is low cost, readily available and which has no or less investment	A, B, C, D, E, F
		CAR Dialogue Supplier	Firms have dialogue with the supplier which has helped them to save costs in different ways	A, C, E, F
		CAR SC use Tacit knowledge gained from past experience	Firms use tacit knowledge gained from past experiences rather than a formal knowledge and save cost of formal training/education	A, B, C, D, E, F
		CAR Precautionary Measures	Firm save cost by using several precautionary measures as mentioned in the section 3.3.17.1 to 3.3.17.12	A, B, C, D, E, F
Main Theme 5-Drivers				
	Direct Economic	Economic Gain	Firms seek economic gain in reverse logistics	A, B, C, D, E, F
		Economic Saving	Firms seek economic savings in the process of reverse logistics	A, B, C, D, E, F
		Short term gain	Firm uses tighter returns policy to save money which is related to short term gain	A, B, C, D, E, F
	Indirect Economic	Customer Satisfaction	Firms seek customer satisfaction in reverse logistics	A, B, C, D, E, F
	Opportunistic Social recognition	Opportunistic Social recognition	Firms give away unsold and excess goods to the friends and family for opportunistic social recognition	D
	No knowledge of drivers Env/CSR	No knowledge of drivers Env. /CSR	Firms are marring their market share & competitive power and putting adverse impact on environment by not understanding the drivers of environment leading to competitive advantage	A, B, C, D, E, F
	No knw. Drivers Leg.	No knowledge of drivers Leg.	Firms are marring their market share & competitive power and putting adverse impact on environment by not understanding the drivers of legislation	A, C

	No Capabilities benefit	No Capabilities benefit	* Firms are not using their existing capabilities of reverse logistics for sustainable competitive advantage * Firms are not aware of the sustainable competitive advantage they can gain through their existing reverse logistics capabilities	A, B, C, D, E, F
Main Theme-6-Barriers				
	Size of the business Suppliers	Not enough Knowledge	Firms do not have enough knowledge on the issues related to reversing the logistics	A, B, C, D, E, F
		Confusion responsibility	Firms are confused about to the extent they are, or should be, responsible for environmental issues, and this could be because of the limited knowledge they have	A, B, C, E
		Not important	Firms think reverse logistics issue is not important, and this could be because of the limited knowledge they have	A, B, C, D, E
		Time constraint	Firms think this is time consuming and do not give importance to this as they do not have enough knowledge on this	A, B, D, E, F
		Resource constraint	Firms have limited resources to undergo reverse logistics tasks-micro business are resource constraint	A, C, E, F
		Informality	Firms do not bother keeping record as they do not have knowledge on the importance of keeping record	A, B, C, D, E, F
		Reluctant	Firms do not have faith or are reluctant to use some disposal option and this is because they are not aware of the pros and cons of the available options	E
		Small volume small impact	Firms have small volume of goods which they think makes small impact	A, B, D
		No reporting	Firms do not keep record because they do not need to report to anyone-flat structure	E
		Short sightedness	Firms are short sightedness and do not see the long-term consequences	A, B, C, D, E, F
		No full supplier assistance	Firms do not get full assistance from their supplier for all the processing aspects related to reverse logistics	A, B, C, D, E, F
		Supplier as burden	Suppliers compensate but do not take back the goods physically which is a burden, as these businesses do not have motivation to look after this any more	A, B, C, F
	Nature of Product	Nature of the product	Products nature is a barrier as they do not have resources and expertise to look after all types of goods	A, B, C, F
	Policy	Weak Policy formulation	No knowledge of the ‘own initiative’ and the ‘legislative’ take-back categories	A, B, C, D, E, F

Appendix I: New Emerging Themes for the Final Phase Research

New/Emerging themes	Themes Meaning	Relation with the main Themes	Firms
Speculative behaviour	• Firms speculate the time required • Firms speculate the volume of the goods accumulation	Intangible resources - tacit knowledge	A, B, C, D, E, F
Informal behaviour	• Firms put the waste in domestic bin • Informal give to scrap people (Firm B only)	Intangible resources	A, B, C, F
Unethical behaviour	Unethically sell the customer returned goods as new	Intangible resources	A, B, C, D, E, F
Illegitimate behaviour	Store in the loft of the shop even though the landlord doesn't want this	Intangible resources	E
Excessive precaution/prevention	Use very tight returns policy	Intangible resources	A, B, C, D, E, F
Opportunistic economic and social behaviour	Personal use and office use for economic gain Give to friends and family for social recognition	Intangible resources	A, B, C, D, F
Enquiring and seeking knowledge	Curious about new knowledge and are desperately seeking knowledge	Intangible Resources	C, D
Government help	Seeking help from the government	Intangible resources	C
Standardised support and not collaboration	Standardise support based on terms and conditions snot the term related to collaboration	Intangible resources - Supply Chain Relationship	A, B, C, D, E, F
Compassion and no resentment	Firms have compassion and no resentment with their suppliers even if they do not get all the help and support	Intangible resources - Supply Chain Relationship	A, C, D, E, F
Suppliers add burden	Suppliers do not take back goods physically	Intangible resources - Supply Chain Relationship	A, B, C, F
Superior behaviour	Firms give advice to the suppliers	Intangible Resources - Supply Chain Relationship	C, E
Economic driver leading to social and environment outcome	Done for economic gain/savings but this can bring good environmental outcome	Drivers	B
More economic saving than economic gain	Firms emphasise economic saving rather than economic gain	Drivers	A, B, C, D, E, F
Capabilities not used for sustainable competitive advantage	Firms engage in reverse logistics task but do not realise the social and environmental effects it brings which ultimately can be used for sustainable competitive advantage	Drivers	A, B, C, D, E,
Going with the trend	Firms do not repair because repairing is not in the trend	Barriers	E
Sensitive issues/phenomena	Firms are sensitive in answering the questions related to returns, unsold excess or damaged/broken - which may show the failure of the business	Barriers	A, B, C, D, E, F
Reluctant behaviour	Firms do not trust the charitable organisations, and hence do not give their products to them	Barriers	C
Confusing issues/phenomena	• Feeling of helplessness, confusion and anger on 'own initiative' and 'legislation' take-back • Helplessness and confusion about the extent of their responsibility about environment-are they responsible and if they are to what extent	Barriers	A, B, C, D, E, F

Appendix J: Cost Facets of Reverse Logistics in the Studied Businesses

Known/Visible Costs	Firm bears the cost of transportation and the cost is directly visible as the business transport system is used	B
	Firm bears the cost of storage and the cost is directly visible in the use of proper storage	B, C, D, F
	Firm bears the cost of sorting/selecting/inspecting/testing and this cost is directly visible in the use of specialist engineer	B
	Firm bears the cost of throwing in the bin by arranging a bin man and the cost is directly visible	A, B, C, F
	Firm bears the cost of repackaging and the cost is directly visible in the materials used	A, C
	Firm bears the cost of repair and refurbishment and the cost is directly visible in the material used and un the use of external entity as the specialist engineer	B
	Firm understands that they have to bear the cost of minor repairing and the cost is directly visible	A, B, C
	Firm understands that they have to bear the cost of using the other channels like Face book, eBay and Gumtree	B, D
	Firm understands that they have to bear the cost of using the cleaners	B
Hidden Costs	Firm will have to bear the cost of both economic and environmental repercussion for not have the knowledge of all the reasons for goods accumulation	A, B, C, D, E, F
	Firm will have to bear the cost of not knowing the capabilities and cost required by not precisely knowing the volume of goods	A, B, C, D, E, F
	Firm will have to bear the cost of not having the knowledge of all the disposal options as this will not allow them to	A, B, C, D, E, F
	Firm will have to bear the cost of not knowing the precise time required as this may result in more unsold, obsolete and damaged goods	A, B, C, D, E, F
	Firm will have to bear the hidden cost of the processes of reverse logistics-transportation, storing and sorting/selecting/inspecting/testing	A, B, C, D, E, F
	Firm will have to bear the cost of both economic and environmental repercussion for throwing the goods in the bin	A, B, C, E, F
	Firm storing the goods in the loft of the shop without the agreement of the landlord-fire risk	E
	Firm storing the goods in the corner of the shop which could have been used for displaying goods to be sold	A, B, C, D, E, F
	Firms use the space for bin which could have been used for some other purpose	A, B, C, D, F
	Firms not having dialogue or long term favourable relationship with their supplier are not benefitted	B, D
	Goods remaining too long in the firm will lead to obsolesce, damage and expiry	A, B, C, D, E, F
	Firms will have to pay the cost of losing and alienating customers by using a tighter returns policy	A, B, C, D, E, F
	Firms may have to bear the consequences of being unethical by selling the customer return goods as new	A, B, C, D, E, F
	Firms are marring their market share and competitive power by not understanding the drivers of environment leading to competitive advantage	A, B, C, D, E, F
	Firms are using time and effort in identifying and using the disposal options	A, B, C, D, E, F
Cost Avoidance/Savings	Firms take back goods to the suppliers in the next visit, and do not travel just for the sake of it	A, B, C, D, E, F
	Firms used suppliers transport system and save cost in transportation	A, B, C, D, E, F
	Firms used supplier set up storage and save cost in storage	A,
	Firms used the loft of the shop rather than a proper storage and save cost	E
	Firms give away the accumulation to charity rather than storing it, and save cost of storage	E
	Firms avoid cost by selling returned goods as new	A, B, C, D, E, F
	Firms use informal scrap people to give away their unwanted goods to avoid costs of doing it legally	B
	Firms save cost by using the disposal option that is low cost, readily available and which has no or less investment	A, B, C, D, E, F
	Firms have dialogue with the supplier which has helped them to save costs	A, C, E, F
	Firms use tacit knowledge gained from past experiences rather than a formal knowledge and save cost of formal training/education	A, B, C, D, E, F
	Firms save cost by using several precautionary measures	A, B, C, D, E, F

Publications

Dhakal, M., Smith, M.H. and Newbery, R. (2016) 'Secondary market: a significant aspect in reverse logistics and sustainability'. *International Journal of Social Sustainability in Economic, Social and Cultural Context*, 12(1), pp.24-35.

Journal Article writing in progress for International Small Business Journal, 'Competitive Advantage in Micro Firms through Reverse Logistics – Resource Based View Perspective'

Paper Presentations and Conferences Attended

Paper presented for 38th ISBE www.isbe.org.uk, Institute for Small Business and Entrepreneurship Conference Manchester-November 2015, 'Reverse Logistics in Small Businesses-Initial Findings'.

Paper presented in the UK Plymouth Doctoral Colloquium, UKPDC www.ukpdc.org, Plymouth University -June 2015, 'Goods accumulation in the Reverse Channel of Small Businesses: Economic and Environmental Sustainability Perspective'.

Paper presented for The Postgraduate Society Conference Series, Plymouth University -March 2015, 'An initial take up of a complex issue in small business context: Progressing in Methodology.'

Paper presented in the 37th ISBE, Institute for Small Business and Entrepreneurship Conference www.isbe.org.uk -November 2014, 'Reverse Logistics in Small Businesses – A Research Agenda.'

Paper presented in the 9th Plymouth Postgraduate Symposium- PPGS (now known as UKPDC www.ukpdc.org), Plymouth University, July 2014, 'Reverse Logistics in Small Businesses: A Resource Based View Perspective.'

Poster presentation in ISSR, Institute for Sustainable Solution Research, Plymouth University (now known as Sustainable Earth Institute https://www.plymouth.ac.uk/research/institutes/sustainable-earth), May 2014, 'Sustainability in Small Businesses: A Reverse Logistics Perspective.'

Poster presentation in the Plymouth University Postgraduate Society Conference Series- June 2012 'Reverse Logistics in Small Businesses – An Exploratory Study.'

External and/or Relevant Engagements

Reviewer for the Journal 'Environmental Communication' – Routledge Open Select (Taylor and Francis online http://www.tandfonline.com/loi/renc20#.VbtNxKRViko 2015.

Reviewer UKPDC Plymouth www.ukpdc.org 2014-present.

Reviewer for the Journal Collection for the 'On Sustainability' Conference http://onsustainability.com/publications 2015-present.

Associate Auditor for, The International Journal of Sustainability Education - ISSN: 2325-1212 (print), 2325-1220 (online)-2015-present.

Member for ISBE www.isbe.org.

Chaired the annual academic conference, UKPDC (UK Plymouth Doctoral Colloquium) www.ukpdc.org 2015-16.

Organising Committee Member, for the annual academic conference, UKPDC (UK Plymouth Doctoral Colloquium) www.ukpdc.org 2013-2015.

Associate lecturer, Plymouth Business School, Plymouth University https://www.plymouth.ac.uk/ 2013-present.

Attended the Doctoral Day organised by ISBE www.isbe.org , Manchester, November 2014.

Attended the ISBE workshop 'Rural entrepreneurship exploring theoretical divergence in the Global North and South', Futures Centre, Plymouth University, July 2014.

Attended ISBE Doctoral Workshop: 'Qualitative Research on Small Business and Entrepreneurship' – March 2013.

Participated in several Postgraduate Research Skills Programmes run and arranged by the Graduate School Plymouth, Plymouth University – 2012 - to date.